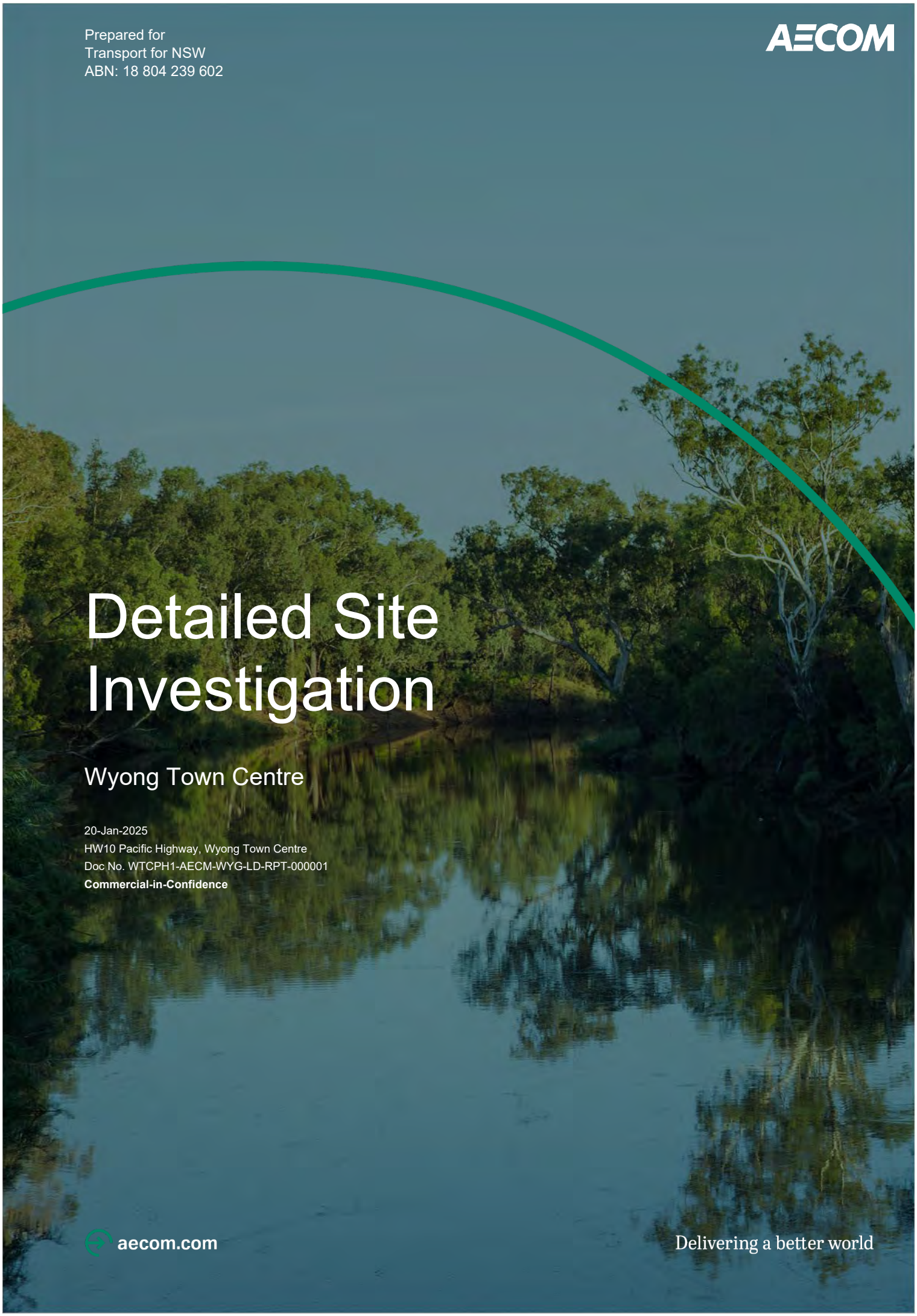
Appendix E – Detailed Site Investigation

Prepared for
Transport for NSW
ABN: 18 804 239 602

AECOM



Detailed Site Investigation

Wyong Town Centre

20-Jan-2025
HW10 Pacific Highway, Wyong Town Centre
Doc No. WTCPH1-AECM-WYG-LD-RPT-000001
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Detailed Site Investigation

Wyong Town Centre

Client: Transport for NSW

ABN: 18 804 239 602

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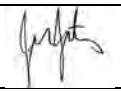
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Glossary and abbreviations

Acronym	Definition
ACM	Asbestos containing material
AHD	Australian height datum
ANZG	Australian and New Zealand and Australian State and Territory Governments
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 2013
ASS	Acid Sulfate soil
bgl	Below ground level
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CoPC	Contaminant of potential concern
CSM	Conceptual site model
DEC	Department of Environment and Conservation NSW
DECC	Former NSW Department of Environment and Climate Change (now OEH)
DP	Deposited plan
DPE	NSW Department of Planning and Environment
DSI	Detailed Site Investigation
DUAP	NSW Department of Urban Affairs and Planning
EHC Act	*Environmentally Hazardous Chemicals Act 1985* (NSW)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EPA	NSW Environment Protection Authority
ENM	Excavated natural material
HEPA	Heads of EPAs Australia and New Zealand
km	kilometres
LEP	Local Environmental Plan
LGA	Local Government Area
m	metres
NEPC	National Environment Protection Council
NEMP	National Environmental Management Plan
NEPM	National Environment Protection Measure

Acronym	Definition
NSW	New South Wales
OCPs	Organochlorine pesticides
OEH	Office of Environment and Heritage
OPPs	Organophosphorus pesticides
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PFAS	Per- and poly- fluoroalkyl substances
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RAP	Remedial Action Plan
SAQP	Sampling, Analysis and Quality Plan
SSI	State Significant Infrastructure
SVOC	Semi-volatile organic compounds
SWL	Standing water level
TCLP	Toxicity leaching characteristic procedure
Transport	Transport for NSW
TRH	Total recoverable hydrocarbon
UPSS	Underground Petroleum Storage Systems
VENM	Virgin excavated natural material
VOC	Volatile organic compounds
VOCC	Volatile organic chlorinated compounds

Executive Summary

Background and objectives

AECOM Australia Pty Ltd (AECOM) was engaged by Transport for New South Wales (TfNSW) to undertake a Targeted Detailed Site Investigation (DSI) in the footprint of the proposed Pacific Highway upgrade through Wyong town centre, hereafter referred to as the 'project area' as defined in **Figure 1.A** in **Appendix A**. The overarching objective of the Targeted DSI is to identify contamination risks and inform design and construction remediation and management options. The objectives of the Targeted DSI were to:

- identify the nature and extent of contaminants of potential concern (CoPCs) in environmental media at the areas of environmental concern (AEC)
- undertake an indicative waste classification and assess the potential to reuse soils in areas of cut
- identify if groundwater present beneath the site may be intersected during construction and the nature and extent of CoPCs in groundwater beneath and down-gradient of the AECs
- identify complete or potentially complete source-pathway-receptor (SPR) linkages exist for CoPC
- decide if contamination requires remediation for the site to be considered suitable for the proposed land use.

Scope of works

The scope of works completed for the contamination investigation comprised:

- logging and collection of soil samples from 52 boreholes, 18 test pits, five hand augers and two pavement cores
- installation and development of 15 new groundwater monitoring wells
- sampling of 15 new and two exiting groundwater monitoring wells
- installation, leak testing and sampling of four soil vapour monitoring wells
- collection of 23 coal tar samples from asphalt cores
- laboratory analysis of selected soil, ground water and soil vapour samples for CoPC
- surveying of completed borehole and monitoring wells.

Findings and conclusions

Based on the review of previous investigation data and new soil data obtained during this investigation, soil impacts have found to be limited in extent to three shallow soil sample locations. There was one hotspot of lead (Pb) in the rail corridor and two locations where carcinogenic polycyclic aromatic hydrocarbons (PAHs) exceeded the adopted human health based assessment criteria in the Pacific Highway between Anzac Avenue and North Road.

Asbestos containing material (ACM) was not observed the soil subsurface in test pits or boreholes and was not detected in soil samples analysed. There were isolated fragments of ACM observed on the ground surface, with one near the intersection of south Tacoma Road and the Pacific Highway and within the rail corridor. Based on the presence of underground service conduits and service pits made of ACM within the project area and some areas of fill with inclusions of demolition wastes, it is likely asbestos in soil would be encountered during future excavation works in parts of the project area.

Groundwater was encountered at depths ranging between 0.3 metres below ground level (mbgl) and 10 mbgl. No sheen or non-aqueous phase liquids (NAPL) were observed in the groundwater wells sampled. All groundwater and soil vapour results were less than the adopted human health based assessment criteria. Groundwater results exceeded the adopted ecological screening criteria for heavy metals (cadmium, chromium, copper, nickel and zinc) across the project area and perfluorooctanesulfonic acid (PFOS) in the wells closest to the fire station. Groundwater extracted during dewatering activities during construction would require testing and assessment against discharge criteria or be disposed of at an appropriately liquid waste facility.

The conceptual site model (CSM) has been revised based on the results of investigation. All AECs are considered low risk with the exception of the following:

- AEC 1, AEC 11 and AEC23: Operational service stations (low to moderate risk) due to ongoing use (potential for future spills/leaks)
- AEC 17: unregulated fill adjacent to the Pacific Highway and rail corridor which is moderate risk
- AEC 25: coal tar pavements (low to moderate risk) due to potential presence
- AEC 20a to g and 26: ACM pipes (moderate risk).

Localised soil remediation or management would be required during construction at the lead hotspot within the rail corridor and area impacted with carcinogenic PAHs at the Pacific Highway just south of North Road intersection.

Where the impacted soils are to be excavated as part of bulk excavation and disposed off-site to an appropriately licensed waste facility, a remediation action plan (RAP) would not be required. Where the impacted soils are not proposed to be excavated within the construction footprint or re-use of soils is proposed, a RAP and validation report would be required to demonstrate unsuitable soils have been delineated and removed. An asbestos management plan (AMP) would be required to manage removal of asbestos conduits and pits as well as areas where asbestos impacted fill or surface soils are encountered. An unexpected finds protocol (UFP) should also be prepared for construction to manage potential previously unidentified contamination encountered during construction.

Based on the comparison of the soil results to the excavated natural material order 2014 (ENM order), fill and natural shallow soils within the project area would not meet the ENM order requirements based on the results. Comparison of the results to the NSW EPA (2014) *Waste Classification Guidelines – Part 1 Classifying Waste*, identified areas of restricted solid waste (RSW) and hazardous waste (HW) at several locations across the project area. Further sampling and analysis including toxicity characteristic leaching procedure (TCLP) analysis may change the classification. Areas of acid sulfate soils, located mainly within and south of the Wyong River would be classified as potential acid sulfate soils and require disposal in accordance with NSW EPA (2014) *Waste Classification Guidelines – Part 4* Acid Sulfate Soils and treatment and management in accordance with the Acid Sulfate Soil Management Plan (ASSMP) (AECOM, 2024b).

1.0 Introduction

1.1 Background

AECOM Australia Pty Ltd (AECOM) was engaged by Transport for New South Wales (TfNSW) to undertake a Targeted Detailed Site Investigation (DSI) in the footprint of the proposed Pacific Highway upgrade through Wyong town centre. TfNSW propose to upgrade a section of the Pacific Highway that passes through the town centre of Wyong, NSW. The Central Coast's population is forecast to grow by 75,000 people over the next two decades – with the majority of this growth to occur in and around its civic and cultural heart: Wyong. The Pacific Highway Upgrade project and the associated car park and town centre developments are critical to Wyong's ability to meet this challenge.

Key features of the project include:

- upgrade of a 2.4km stretch of the Pacific Highway between Johnson Road and Cutler Drive intersections
- improving traffic flow and safety
- improving access to public transport and encourage active transport
- maintaining the town identity and cater for future public transport projects.

The location of the proposed upgrade includes:

- northern section – road upgrade works area north of the Wyong River. Pacific Highway from Wyong River and extends to approximately 290 m north of the intersection with Cutler Drive. This section includes portions of North Road, Anzac Ave, Rose Street, Howarth Street, River Road and Panonia Road.
- southern section – road upgrade works area south of the Wyong River. Pacific Highway commencing at intersection with Johnson Road and extending to the Wyong River. This section includes portions of McPherson Road and S Tacoma Road.

A REF was prepared for the Pacific Highway upgrade through Wyong town centre in 2015 (referred to in this addendum REF as the 'Project REF') (Roads and Maritime, 2015). The Project REF was placed on public display between 27 October 2015 and 27 November 2015 for community and stakeholder comment. A submissions report dated February 2016 was prepared to respond to issues raised (Roads & Maritime, 2016).

Following further design development in 2017, an addendum REF for the Pacific Highway upgrade through Wyong town centre was prepared (the '2017 addendum REF') (Roads & Maritime, 2017). AECOM is now undertaking design changes to the 100% Concept Design (proposed modification) and an addendum REF.

The project area boundary is defined on **Figure F1.A** in **Appendix A** and described in **Section 2.0**.

1.2 Objectives

The overarching objective of the Targeted DSI is to identify contamination risks and inform design and construction remediation and management options. Specific objectives of the DSI as stated in the data quality objectives (DQOs) (see **Section 4.1**) are:

- identify the nature and extent of contaminants of potential concern (CoPCs) in environmental media at the areas of environmental concern (AEC)
- undertake an indicative waste classification and assess the potential to reuse soils in areas of cut
- identify if groundwater present beneath the site may be intersected during construction and the nature and extent of CoPCs in groundwater beneath and down-gradient of the AECs
- identify complete or potentially complete source-pathway-receptor (SPR) linkages exist for CoPC

- decide if contamination requires remediation for the site to be considered suitable for the proposed land use.

1.3 Scope of work

The following Sampling, Analysis and Quality Plans (SAQPs) were prepared for the investigation:

- AECOM (2023a) Sampling, Analysis and Quality Plan 1, Wyong Town Centre - Environmental Assessment
- AECOM (2023b) Sampling, Analysis and Quality Plan 2, Wyong Town Centre - Environmental Assessment - developed to specifically address potential soil vapour risks identified by SMEC (2015) from potential underground petroleum storage systems (UPSS) along the western portion of the between North Street and Anzac Avenue.

The investigation was undertaken in accordance with the SAQPs except where stated (see **Section 8.1**). The investigation was undertaken at the same time as geotechnical investigation. Some investigation locations were completed for both geotechnical and contamination investigations and some were contamination investigation only. The geotechnical investigation results are presented in a separate Geotechnical Factual Report (GFR) (AECOM, 2024).

The scope of works completed for the contamination investigation comprised the following:

- logging and collection of soil samples from:
  - 52 boreholes drilled to a maximum depth of 6 metres below ground surface (bgl)
  - 18 test pits excavated to a maximum depth of 3 bgl
  - 5 hand augers to a maximum depth of 1.5 bgl
  - 2 pavement cores
- installation and development of 15 new groundwater monitoring wells
- sampling of 15 new and two exiting groundwater monitoring wells
- installation, leak testing and sampling of 4 soil vapour monitoring wells
- collection of 23 coal tar samples from asphalt cores
- laboratory analysis of selected soil samples for CoPC:
  - heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
  - total recoverable hydrocarbons (TRH)/total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN)
  - polycyclic aromatic hydrocarbons (PAHs) and phenols
  - organochlorine pesticides (OCPs)
  - organophosphorus pesticides (OPPs)
  - polychlorinated biphenyl (PCBs)
  - per- and polyfluoroalkyl substances (PFAS)
  - volatile organic compounds (VOC)/ semi- VOC (SVOC)
  - chlorinated hydrocarbons (CHCs)
  - cyanide (total and weak-acid dissociable [WAD])
  - ammonia, nitrate, nitrite and nitrogen
  - physio-chemical parameters (pH, clay content, electrical conductivity, chloride, fluoride, sulfate and cation exchange capacity [CEC])
  - asbestos.

- laboratory analysis of 16 groundwater samples for TRH, BTEXN, PAH, phenols, pesticides, VOC/ SVOC, heavy metals and PFAS (note one well wasn't sampled due to being dry)
- laboratory analysis of soil vapour canisters from two soil vapour monitoring wells for TRH, BTEXN, PAH, CHCs, VOC/ SVOC and natural gases (oxygen, hydrogen, carbon monoxide and carbon dioxide) (two vapour wells could not be sampled due to water in the probes)
- surveying of completed borehole and monitoring wells.

The summary of sampling locations completed is provided in **Table T1** in **Appendix B**. Acid sulfate soil sampling was also undertaken as part of the site investigations. The results of the acid sulfate soil sampling are presented in the GFR (AECOM, 2024).

1.4 Relevant guidelines

The investigation works were conducted in general accordance with the following key documents:

- National Environmental Protection Council (NEPC) (2013) Amended Assessment Site Contamination (ASC) National Environmental Protection Measure (ASC NEPM), April 2013
- NSW EPA (2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997
- NSW EPA (2020) Guidelines for the Site Auditor Scheme, 3rd Edition
- New South Wales Environment Protection Authority (NSW EPA) (2020) Consultants reporting on contaminated land: Contaminated Land Guidelines, May 2020
- NSW EPA (2022) Sampling Design Guidelines, August 2022
- NSW Department of Environment, Climate Change and Water (DECCW) (2010) Vapour Intrusion: Technical Practice Note, September 2010
- Department of Environment and Conservation (DEC) NSW (2007) Guidelines for the Assessment and Management of Groundwater Contamination, March 2007
- Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) (2013) Technical Report No.23 – Petroleum Hydrocarbon Vapour Intrusion Assessment Australian Guidance, July 2013
- Heads of Environment Protection Authority (HEPA) (2020). PFAS National Environmental Management Plan 2.0, February 2020
- NHMRC (2008) Guidelines for Managing Risks in Recreational Water. Australian Government, National Health and Medical Research Council
- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, August 2018.

2.0 Description of the proposed modification

2.1 Modification description

TfNSW proposes to modify the Pacific Highway upgrade through Wyong town centre to include design changes to the 100% Concept Design. The Project Review of Environmental Factors (REF) described the key features of the 100% Concept Design and assessed potential impacts associated with the construction and operation of the Project.

Key features of the proposed modifications include:

- a new signalised intersection at McPherson Road in place of a roundabout
- stop lines instead of a roundabout at the intersection of Panonia Road and River Road
- closing vehicle access from the Pacific Highway to Robleys Lane
- a new signalised T-intersection in place of the existing Rose Street roundabout and closing the Rose Street / Howarth Street intersection by making Rose Street a cul-de-sac. In addition, adjustments to bridge design and alignment are proposed
- a new single four-lane bridge structure over the Wyong River instead of the previously proposed twin bridges to accommodate both northbound and southbound traffic
- a replacement bridge on Rose Street over the rail line on an alignment slightly south of the existing bridge.

The modification also includes design adjustments and a staged approach for the construction of the commuter car park, with a first stage proposed in these works as an at-grade structure instead of multi-storey, with future compatibility as a multi-storey structure.

The design changes also encompass a dedicated off-road cycle path as well as footpaths on the eastern side of the Pacific Highway, shared-use paths on the western side, and improvements to pedestrian routes and urban design in Wyong town centre. This includes retaining existing footpaths with additional widening to minimise disruption to businesses and key underground utilities and further improving the urban design to enhance public amenity.

The Project REF described a left in, left out intersection at Apex Park to replace the Watanobbi Road intersection off North Road. The modification proposes design changes to the road width along the Pacific Highway adjacent to Apex Park, between North Road and Cutler Drive and would remove the previously proposed left in, left out access to Watanobbi Road from the Pacific Highway. Cyclists and pedestrians would be relocated onto an upgraded section of Watanobbi Road, which would remain a closed-off street parallel to the Pacific Highway.

The Project REF described an extension of the railway pedestrian bridge to connect the Wyong Railway Station directly to the Pacific Highway. The proposed modification does not include this extension and instead improves existing access to the station (at grade) via the Church Street traffic lights. A number of bus stops on the Pacific Highway would also be modified.

Given the interconnected nature and shared interface of the Wyong Rail Enabling Works Project and the Pacific Highway upgrade, the scope of the early works has been integrated with the proposed modification. This includes the re-alignment of a siding within the existing rail corridor, relocation of the overhead electrical lines under the rose street bridge and relocation of some rail utilities within the current rail corridor and modifications to a retaining wall for siding access along the Pacific Highway opposite the River Road intersection. All these works are required as a result of the surrounding highway and local road works for the proposal.

Further, the REF boundary has also been adjusted where necessary to accommodate the proposed modification, the rail enabling works and some potential temporary works for construction or traffic management.

2.2 Construction methodology

The construction methodology for the proposed modification is described in Table 1.

Table 1 Proposed construction methodology

Construction stage	Proposed construction methodology
South zone – Pacific Highway from Johnson Road to the intersection between Panonia Road and River Road, including the Wyong River bridge	
Stage 1	• Conduct traffic configuration activities • Site establishment • Demolish properties along McPherson Road • Establish a project management compound on Transport-owned land on the southern side of the Wyong River, west of South Tacoma Road • Carry out clearing and offline works • Carry out riverbank adjustments • Realign South Tacoma Road and Panonia Road • Relocate utilities • Construct new stormwater infrastructure and pavement • Switch traffic to new South Tacoma Road, Panonia Road, and McPherson Road alignments.
Stage 2	• Conduct traffic configuration activities • Commence bridge works - Establish working areas on both sides of the riverbank - Carry out clearing and grubbing activities for northern and southern approaches and abutments - Construct piling pads - Construct temporary bridge in river - Conduct piling for all piers and abutments - Construct pier column extensions - Construct pier headstocks and abutments - Backfill abutments and construct approach slabs - Install bearings to all abutments and piers - Remove temporary bridge and piling pads from river - Install girders with 500 tonne (t) mobile crane - Install barriers, drainage and throw screens - Place asphalt on southbound lanes - Switch Pacific Highway traffic to northbound lanes on new bridge.
Stage 3	• Conduct traffic configuration activities • Demolish the existing Wyong River bridge - Install a catch net to the underside of the existing bridge to collect debris - Mill off existing asphalt - Remove barriers, fences, light poles etc. - Install mobile crane/s on the southbound lanes of the new bridge - Cut concrete deck into sections and lift sections with crane to trucks on southbound lanes of new bridge - Remove lead paint to the extent required for demolition. Apply sealing paint to remaining painted area - Cut steel components into sections and lift section with crane/s to trucks on southbound lanes of new bridge - Demolish piers. - Construct abutment extensions to new bridge - Install the prefabricated cycleway on the eastern side of the new bridge - Complete southbound Pacific Highway approaches earthworks, retaining walls and pavements

Construction stage	Proposed construction methodology
	- Open traffic to new Pacific Highway alignment.
Central zone – Pacific Highway from the intersection between Panonia Road and River Road to the intersection between Anzac Avenue and Pacific Highway, including the Rose Street bridge	
Stage 1	• Construct temporary offset commuter car park (if required) • Demolish buildings • Relocate utilities • Construct the new commuter car park (except the top-level fronting Howarth Street) and commission • Construct the new bus layover area within the existing commuter car park east of the Wyong Railway Station and commission • Construct Howarth Street roundabout • Construct temporary Howarth Street alignment on the north-eastern side of the existing Howarth Street / Rose Street roundabout • Carry out rail infrastructure adjustments for bridge works.
Stage 2	• Conduct traffic configuration activities • Construct new Rose Street bridge - Establish sites on the eastern and western side of the railway line at rail level - Demolish / clear existing rail infrastructure either side of the existing bridge - Carry out rail adjustments - Install sheet piles on the southern side of the existing abutments to temporarily retain the existing reinforced soil wall - Progressively excavate southern verge batters, demolish reinforced soil wall, and install anchors into sheet piles - Install bridge piles - Construct pile caps, pile extensions, reinforced soil wall and precast fascia panels and backfill to underside of abutment sill beam - Consider whether temporary cutoff piles are required adjacent to the existing bridge to support new bridge approach backfill whilst old bridge is demolished, and approaches excavated - Construct new abutment sill beams and curtain walls - Install bearings - Install steel girders with a 500 t mobile crane located on the western side of the new Rose Street bridge and girders delivered from the Pacific Highway - Construct bridge deck - Install barriers and anti-throw screens - Backfill curtain walls and construct approach slabs - Carry out earthworks and install pavements to approaches • Construct retaining walls • Construct new southbound Pacific Highway alignment through existing commuter car park area • Construct Howarth Street south of Rose Street bridge • Remove the Howarth Street / Rose Street roundabout • Switch Rose Street traffic to new Rose Street bridge.
Stage 3	• Conduct traffic configuration activities • Demolish existing Rose Street bridge - Mill off existing asphalt - Jack the deck and replace bearings with temporary blocks - Remove screens, railings, etc

Construction stage	Proposed construction methodology
	- Cut off utilities channel and barrier parapets - Cut deck into single beam sections - Excavate approaches on both sides and demolish curtain walls to expose diaphragms at ends of girders - Establish large mobile crane (500 t) behind the west abutment - Conduct weekend rail possession works - Construct retaining walls (RW-MW9 and RW-M12). • Remove the 33 palm trees from the Pacific Highway (refer to Section 6.8.1 for details of diseased palms) • Construct the northbound Pacific Highway pavement • Open traffic to new Pacific Highway alignment • Complete construction of the Howarth Street and Rose Street intersection • Open traffic to new Howarth Street and Rose Street intersection.
North zone – Pacific Highway from the intersection between Anzac Avenue and Pacific Highway to the intersection between Cutler Drive and Pacific Highway	
Stage 1	• Relocate utilities including the sewer pumping station in Apex Park • Construct drainage swales and culverts • Construct southbound Pacific Highway
Stage 2	• Conduct traffic configuration activities • Switch Pacific Highway lanes to the new southbound lanes. • Complete culverts commenced in Stage 1 • Construct northbound Pacific Highway and connecting streets pavement.
Stage 3	• Complete works • Direct traffic to new Pacific Highway alignment.

2.3 Earthworks

The earthworks volumes estimated for the proposed modification are a total of 60,000 m^3 of cut and 66,000 m^3 of fill (6,000m^3 more fill than cut). There is therefore capacity for excavated materials to be reused within the project area where suitable. Imported engineered materials will be required for the road subgrade and services and therefore there will be an excess of cut due to the requirement of suitable engineered fill.

The proposed depth of cut is variable across the project area with excavations typically to a minimum depth of 0.8 to 1 m bgl to allow installation of the required road subgrade (where there are no changes from the existing surface to the design surface). Deeper excavations (>1 m bgl) would be required where existing embankments require cutting into or where the installation of new underground services or relocation of existing underground services is required.

3.0 Project area

The project areas is identified in **Table 2** and is shown in **Figure A.1**, **Appendix A**.

Table 2 Project area identification

Item	Description
Site Address	Pacific Highway, Wyong
Locality	North of Wyong Bridge: The project area starts on the Pacific Highway on the northern side of the Wyong River. The area continues North along the Pacific Highway until approximately 300m north of the intersection between Pacific Highway and Cutler Drive. The northern section includes areas surrounding the Wyong train station, including portions of Howarth and Rose Street. Portions of Panonia Road and River Road (adjacent to the Wyong River) are also included. Portions of intersections along the Pacific Highway are also included, such as Church Street, Alison Street, ANZAC Avenue, North Road, and Cutler Drive. This section is approximately 1.9km. South of Wyong Bridge: The project area starts on the Pacific Highway on the southern side of the Wyong River. This section includes portions of McPherson Road and South Tacoma Road. This section is approximately 450 metres in length.
Local Government Authority	Central Coast Council.
Previous Land Use Zoning	Unknown.
Environmental Planning Instrument	Central Coast Local Environmental Plan (LEP) 2022
Current Zoning	The majority of the works upgrade is zoned SP2 Infrastructure (Road and Traffic Facility). Smaller portions of the works upgrade area is zoned: • C3 – Environmental Management • E2 – Commercial Centre • E3 – Productivity Support • E4 – General Industrial • MU1 – Mixed Use • RE1 – Public Recreation • RE2 – Private Recreation • R3 – Medium Density Residential • W1 – Natural Waterways Land use zoning is shown on **Figure 1E** in Appendix A.
Current Land Use	Road and rail infrastructure, commercial/ industrial, residential, recreation, waterway / environmental management.
Proposed Ongoing Land Use	Road / rail infrastructure.
Section Area (Total)	Approximately 106 hectares (ha).
Site Location and Layout	Refer to **Figure A.1** through **Figure A.7, Appendix A**

4.0 Data quality objectives and indicators

4.1 Data quality objectives

A seven-step Data Quality Objective (DQO) approach was developed in both SAQPs developed for the Environmental Assessment (AECOM, 2023a), and Soil Vapour Investigation and Risk Assessment (AECOM, 2023b), to set QA/QC parameters for the investigation and laboratory program to ensure data of appropriate reliability would be used for the purposes of the assessment. The design of the DQO approach was undertaken in accordance with Appendix IV of the NSW DEC Guidelines for the NSW Site Auditor Scheme (3rd Edition), 2017.The DQOs as stated in the SAQP (AECOM, 2023) are presented in **Table 3**.

Table 3 Date quality objectives

Step	Data Quality Objective
Step 1. State the problem – Define the problem that necessitates the study	TfNSW is currently undertaking concept design for the upgrade of the Pacific Highway through the town of Wyong. TfNSW wants to gain an understanding of potential legacy contamination issues within the Project area and buffer area that have resulted from historical land use activities. The findings will inform the amelioration / management / remediation that may be required during construction of the Highway upgrade.
Step 2. Identify the goal of the study – State how environmental data will be used in meeting objectives and solving the problem, identify study questions, define alternative outcomes.	The objective of the investigation is to assess if potential contamination issues identified as part of the Phase 1 may present a risk to human health or the environment during construction activities. The inputs to the decisions required to meet the objective are discussed in Step 3. The key decisions to address the objectives of the investigation are: • What is the nature and extent of CoPCs in environmental media at the identified AECs? • Give an indicative Waste Classification / reuse for areas of cut. • Is groundwater present beneath the project area at a depth that may be intersected during construction? • What is the nature and extent of CoPCs in groundwater beneath and down-gradient of the AECs? • Does the data set provide sufficient information to evaluate whether complete SPR linkages exist for CoPC? • Are there any complete or potentially complete exposure pathways? • Does contamination, if identified, require remediation in order for the site to be considered suitable for the proposed land use?
Step 3. Identify information inputs – Identify data and information needed to answer study questions.	The primary inputs to assessing the contamination status of site will be: • Review of available site historical information • Review of available geological, hydrogeological and soil data • Observations of site conditions, potentially contaminating activities and environmental media during site inspection • Collection of representative samples of environmental media including fill, underlying native soil, sediment, and surface and groundwater (if present) • Using appropriate sample collection techniques to obtain samples representative of conditions at the site • Using appropriate analytical methods (i.e. NATA endorsed) with quantitation limits below the adopted assessment criteria • Assessing for the presence of CoPC in the sampled media at concentrations above NSW EPA-endorsed and other suitable assessment criteria.

Step	Data Quality Objective
Step 4. Define the boundaries of the study – Specify the target population and characteristics of interest, define spatial and temporal limits, scale of inference.	**Lateral**: The study boundaries included the project area boundaries as defined on **Figure 1**, **Appendix A**. **Vertical**: Intrusive investigations of soil, soil vapour and groundwater which were proposed to be undertaken up to a maximum depth of 3 mbgl for soil vapour, 6 mbgl for soil and 12 m bgl for groundwater. **Temporal**: Data used for the assessment will include: • data from historical documents reviewed in AECOM (2023a, and 2023b) • data collected during this DSI, assessed against NSW EPA endorsed guidelines currently in place.
	The decision rules for this investigation are as follows: 1. If it is determined that the data generated through this investigation are reliable and suitably characterise soil and groundwater contamination, the data will be compared against the adopted Soil Assessment Criteria (SAC), Groundwater Assessment Criteria (GAC). 2. If comparison of the data generated through this investigation meets the adopted SAC/GAC, then the project area will be considered suitable for the proposed commercial/industrial land use. 3. If comparison of the data generated through this investigation does not meet the adopted SAC / GAC, then further investigations, remediation and/or management will be recommended for specific AECs. If it is determined that the data generated through this investigation are not reliable and/or do not suitably characterise soil and groundwater contamination as required for determining land use suitability, then further investigations may be recommended prior to comparison against the adopted screening criteria.
Step 6. Specify performance or acceptance criteria – Develop performance criteria for new data being collected or acceptable criteria for existing data being considered for use.	The acceptable limits on decision errors applied for the project and the manner of addressing possible decision errors have been developed based on the Data Quality Indicators (DQIs) of sensitivity, precision, accuracy, representativeness, comparability, completeness (SPARCC) as described in **Section 4.2**.
Step 7. Develop the plan for obtaining data – Select the resource-effective sampling and analysis plan that meets the performance criteria.	The collection of data will be optimised by the development of an appropriate sampling and analytical strategy based on an understanding of site history and identified contamination from the previous investigation, site layout, and historical records. Soil, groundwater, surface water and sediment sampling locations will also be positioned to provide general coverage of the site in general accordance with NSW EPA Sampling Design Guidelines (2020).

4.2 Data quality indicators

The investigation data quality indicators (DQIs) were established in the SAQP (AECOM, 2024) to set acceptance limits on field and laboratory data collected at the Site. The DQIs are listed in **Table 4**. The field and laboratory data are assessed against the DQOs and DQIs in **Section 8.2**. Analytical data that failed to meet the predetermined acceptable limits of accuracy and precision were managed using the following corrective actions on a case-by-case basis:

- reanalysing suspect samples, provided sample or extract is within maximum holding time
- evaluating and amend sampling and/or analytical procedures
- re-sampling and re-analysis
- accepting the data with an acknowledged level of bias and imprecision
- discard the data.

Table 4 Date quality objectives

DQI	Media	Field	Laboratory	Acceptability Limits
Precision	Soil / Water	SOPs appropriate and were complied with: Collection of blind and split duplicate samples	Analysis of: Blind duplicate samples (1 in 20 samples non-PFAS) (1 in 10 for PFAS) Split duplicate samples (1 in 20 samples non-PFAS) (1 in 10 for PFAS) Laboratory duplicate samples	RPD of 0 to 30% RPD of 0 to 30% <10x LOR = No Limit 10-20x LOR = RPD 0% - 30% >20x LOR = RPD 0% - 30%
Accuracy	Soil / Water	SOPs appropriate and were complied with: Collection of rinsate blanks Collection of trip blanks	Analysis of: Rinsate Blanks (1 per sampling event) Trip Blanks (1 per laboratory batch) Method blanks Matrix spikes Matrix spike duplicates Surrogate spikes Laboratory control samples Laboratory prepared spikes	Non-detect for CoPC* Non-detect for CoPC* Non-detect for CoPC* 70 to 130% 70 to 130% 70 to 130% Dynamic recovery limits are based on statistical evaluation of processed LCS. 70 to 130%
Representativeness	Soil / Water	Appropriate media sampled according to SOP All relevant media sampled	All samples analysed according to SOP	

DQI	Media	Field	Laboratory	Acceptability Limits
Completeness	Soil / Water	All critical locations sampled All critical samples collected SOPs appropriate and complied with Experienced sampler Documentation correct	All critical samples analysed and all analytes analysed according to SOPs Appropriate methods Appropriate LOR Sample documentation complete Sample holding times as per ASC NEPM (2013)	As per ASC NEPM (2013) As per ASC NEPM (2013) < nominated criteria As per ASC NEPM (2013 As per ASC NEPM (2013)
Comparability	Soil / Water	Sample SOPs used on each occasion Experienced sampler Climatic conditions Same types of samples collected	Same analytical methods used (including clean-up) Sample LORs Same laboratories (NATA accredited) Same units	As per ASC NEPM (2013) < nominated criteria
Sensitivity	Soil / Water	SOPs appropriate and complied with	All critical samples and analytes analysed according to SOP's Appropriate methods applied Appropriate PQL's Analysis of laboratory control samples	(Applicable to Laboratory control samples) 59 to 139%

5.0 Site condition, history and environment

5.1 Site description

The project area comprises a section of the Pacific Highway through the township of Wyong, New South Wales. Wyong is located in the Central Coast about 92 km north of Sydney CBD and 74 km south of Newcastle. The site is situated to the north and south of the Wyong River. The Wyong River flows into Tuggerah Lake about 2.5 km to the east. The foothills of Ourimbah State Forest are located about 3.5 km to the west of Wyong Town Centre.

The areas adjacent to the Pacific Highway Upgrade comprise mostly industrial, commercial or residential properties, the Pacific Highway, adjoining roads, pavements, and the Main North Railway Line corridor orientated in a North – South direction through the proposed upgrade works. Low lying lands are present south of the river with a swamp, lake and Pioneer Creek on the eastern side of the Pacific Highway in the Wyong River floodplains and several industrial businesses and services stations on the west side of the Pacific Highway.

The land directly north of the river is dominated by residential areas on the east and a public reactional area known as Wyong Centennial Park on the west on the riverbank. The town centre consists of Wyong railway station and commercial premises and sporting facilities. Wyong Racecourse is present directly north-east of the town centre and further low-lying swamp lands and Wyong Golf Club are present north of the racecourse. More residential areas are present north-west of the site with several service stations situated on the west along the Pacific Highway. A sewage pumping station also exists in this area.

5.2 Topography and drainage

The project area is located on relatively flat terrain surrounded by existing industrial, commercial and residential properties. The existing highway generally follows the local topography with some cutting and filling, particularly near Wyong Station. The site topography can be considered in three major parts: south of Wyong River; Central region within Wyong Town Centre and north of Wyong Centre.

The southern part is mainly characterised by broad (about 2 km wide), poorly drained, deltaic floodplains and alluvial flats with low lying, slightly elevated terraces are occasionally present. A gradual slope is present from west to east. Site drainage is predominantly to the north towards Wyong River via the road network.

The central region within Wyong Town Centre is gently undulating to rolling low hills. Closer to Wyong Station, the topography has been significantly altered by existing land use. An elevation difference of about 5 m exists from the existing Pacific Highway to the western entrance of Wyong Station. There is an elevation difference of about 2 m from the commuter carpark on the eastern side of Wyong Station to Howarth Street.

The northern part of the site is mainly characterised by very gently sloping terrain towards the northern end of the route at about 1-3°. Open drainage channel feed into existing culverts crossing the Pacific Highway which outfall into the swamp area north of the Wyong Racecourse.

The natural ground surface level from the southern end of the proposed upgrade on the Pacific Highway is generally flat at about RL 3 m AHD, rising to about RL 18 m AHD at the Rose Street bridge north of Wyong Station before dipping down to about RL 2 m AHD at the northern end. The topography and elevation map of the project area is shown in **Figure 1.B** in **Appendix A**.

5.3 Geology

Reference to the Digital NSW Seamless Geology and Gosford-Lake Macquarie (Sheet 9131 and part sheet 9231) indicates that the project area is underlain by various Quaternary Alluvial Floodplain Deposits (QH_af) overlying Munmorah Conglomerate (Tncm) and Patonga Claystone (Tncp) bedrock. Patonga Claystone (Tncp) can be found north of the Wyong River and underlies the surrounding Wyong Town Centre area in the centre of the project area.

Quaternary alluvial floodplain deposits comprising of silt, very fine to medium grained lithic to quartz-rich sand, and clay extend from the southern end of the project area to about 100 m north of the Wyong River bridge. Anthropogenic deposits i.e., fill on Quaternary deposits, are present at the southwest of the project area where the industrial business and service stations are situated, and at the northern end of the project area at the Wyong Racecourse.

The geology then transitions to Patonga Claystone from the Triassic Age Narrabeen Group and is typified by red brown claystone and siltstone, light green-grey fine-grained sandstone. Patonga Claystone overlies the Munmorah Conglomerate and is therefore encountered at the higher elevations around Wyong Town Centre.

The project area is underlain by alluvial valley deposits comprised of silt, clay, (fluvially deposited) lithic to quartz-lithic sand, and gravel before further anthropogenic deposits are present at the Wyong Racecourse as the ground elevation falls towards the northern end of the project area.

The regional geology in the project area in shown in **Figure 1.C** in **Appendix A**.

5.4 Soil

Reference to the 1:100,000 Soil Landscapes Sheet of Gosford-Lake Macquarie indicates that most of the project area to the south of Wyong River is underlain by the Wyong Soil Landscape (Alluvial). The soil landscapes then transition to the Woodbury's Bridge Soil Landscape (Residual) within the central region of the project area near Wyong Station and Gorokan Soil Landscape (Erosional) at the northern end. A section of Disturbed Terrain is also present at the Wyong Racecourse adjacent to the northern section of the project area.

A summary of the soil landscapes units and their descriptions within the project area from the 1:100,000 Soil Landscapes Sheets is presented **Table 5** and their distribution is shown in **Figure 1.D** in **Appendix A**.

Table 5 Summary of soil landscape units

Landscape Grouping	Soil Landscape	Landscape	Soils	Limitations
Alluvial	Wyong (wy) (100km^2)	Broad poorly drained deltaic floodplains and alluvial flats of Quaternary sediments on the Central Coast Lowlands. Slope gradients <3%; local relief <10 m. Meander scrolls, oxbows, and swamps are common. Extensively cleared open forest.	Deep (>200cm) Yellow Podzolic Soils Brown Podzolic Soils, Soloths with some Humus Podzols around lake edges.	Flooding, seasonal waterlogging, foundation hazard, permanent waterlogging (localised), acid sulphate potential, (localised), strongly acid, poorly drained, impermeable soils of very low fertility with saline subsoil.
Residual	Woodburys Bridge (wo)	Gently undulating rises to rolling hills on Patonga Claystone. Local relief 40-80 m and slope gradients up to 20%. Sandstone capping on crests of steeper hills is common. Predominantly cleared tall open forest.	Deep (>150cm) Red Podzolic Soils with some Soloths in poorly drained areas on claystone bedrock; shallow to moderately deep (50-150 cm) Yellow Podzolic Soils on sandstone bedrock.	Extreme erosion hazard, high foundation hazard, seasonal waterlogging (localised), acid soils of very low fertility, low wet bearing strengths and high erodibility.

Landscape Grouping	Soil Landscape	Landscape	Soils	Limitations
Erosional	Gorokan (gk)	Undulating low hills and rises on lithic sandstones of the Tuggerah Formation. Local relief ,30 m; slope gradients <15%. Broad crests and ridges, long gently inclined slopes, and broad drainage lines. Partially cleared low open forest.	Moderately deep (50-150 cm) Soloths and Yellow Podzolic Soils on ridges and crests; Soloths Yellow Podzolic Soils and grey-brown podzolic soils on slopes with Gleyed Podzolic Soils along drainage lines.	Very high erosion hazard, foundation hazard (localised), seasonal waterlogging, hardsetting, strongly acid, low fertility, plastic, impermeable soils.
N/A	Disturbed Terrain (xx)	Level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil. Local relief and slopes highly variable. Landfill includes soil, rock, building and waste materials. Original vegetation completely cleared, replaced with turf or grassland.	Highly variable.	Highly variable depending on the site. Limitations may include mass movement hazard, steep slopes, foundations hazard, unconsolidated low wet bearing strength materials, impermeable soils, poor drainage, erosion hazard, very low fertility and toxic materials.

5.5 Acid sulfate soils

The risk of occurrence of ASS within the project area from the NSW Department of Planning Environment Acid Sulphate Soils risk maps show area ranges from lowest likelihood (Class 5) to highest likelihood (Class 1).

Class 1 soils are found within the bottom sediments beneath Wyong River and in the lowlands close to Wyong River. In contrast, within the northern and central section of the Pacific Highway and including Wyong Station, the risk is categorised as Class 5 which indicates these areas are within 500 m of Class 1 to 4 areas.

Class 3 soils which indicates that there is a high probability of ASS occurrence between 1 m and 3 m below the ground surface, are found to the south of Wyong River to about the intersection with Johnson Road, Tuggerah.

5.6 Hydrogeology

The groundwater data indicates that the depth to the groundwater table generally follows the local topography. Historical data show that depth to groundwater has ranged from about 1 to 4 m bgl and from 0 to 15 m AHD. It is typically shallower near the Wyong River and lowlands area. However, it is quite variable near Wyong Station and the surrounding Town Centre area. The groundwater elevation also typically rises as the underlying depths to bedrock rise, however the depth to bedrock varies.

South of Wyong River, the data suggests that groundwater tables are generally deeper than 1 m below existing surface. North of Wyong River within the central portion, limited groundwater observations were made with groundwater generally at least 3 m below existing ground surface level.

The shallowest depth to groundwater was recorded near Cutler Drive within the northern extent of the project area. For the remainder of the region the groundwater was typically deeper. No long-term

groundwater investigation was carried out in the previous investigations. Groundwater levels change over time due to many factors including rainfall and existing land use. There can also be seasonal variations in groundwater levels.

5.7 Climate

Climate data from the closest weather station, Norah Head AWS (site 061366) located 14 km east from Wyong shows that the highest mean maximum temperature occurs in January (26) and the lowest in July (17.6). The highest mean rainfall occurs in June (147 mm) and the lowest in September (61.7 mm) based on data collected since 1995. The following rainfall was recorded during the investigation period:

- 28 October to 21 December 2023 (soil sampling/well installation): the total rainfall for October 2023 was 61.6 mm, November was 161 mm and December 81.2 mm
- 4 February to 8 April 2024 (soil sampling/well installation): the total rainfall during February 2024 was 115.2 mm and 17.2 mm in March 2024
- 10-12 April 2024 (groundwater sampling): 204.2 mm in prior 30 days and 6.8 mm in prior three days to sampling event
- 23 April 2024 (soil vapour sampling): 382 mm in prior 30 days, including 179.8 mm in three days prior to sampling event.

5.8 Previous investigations

Previous contamination investigations within the project area were reviewed in the SAQP (AECOM, 2024). The data obtained from the previous reports were used to develop the preliminary conceptual site model in **Section 5.9** and the previous reports are summarised in **Table 6**.

Table 6 Summary of previous reports

Reference	Report title and summary
Parsons Brinckerhoff (PB) (2013)	**Wyong Town Centre Phase 1 Assessment** PB undertook a preliminary site assessment (PSI) for the project area. The PSI comprised a desktop assessment which identified potential sources of contamination. • potentially contaminated heterogeneous fill material in the subsurface • petroleum hydrocarbons from the use of adjacent car dealerships and two service stations • chemical residues associated with vehicle storage at the car dealerships and the repair shop where cleaning agents and solvents are stored and an oil water interceptor is present • ballast material and rail infrastructure used along the rail line • coal tar, bitumen, road base and vehicle emissions from the highway and adjacent roads • potential for acid sulfate soils. No sampling or analysis was undertaken as part of the scope.
PB (2014a)	**HW10 Pacific Highway – Wyong Town Centre: Road Pavement and Geotechnical Investigation Factual Report** PB carried out a combined pavement and geotechnical investigation (GI) to characterise the subsurface conditions along the proposed route alignment. While this geotechnical assessment did not target contamination, PB (2014a) did report "*A strong odour of contamination was noted in T051 in the depth range 0.5 to 1.0m*." TP051 is located in the rail holding yard on the eastern side of Pacific Highway (across the highway from ANZAC Avenue).

Reference	Report title and summary
PB (2014b)	**HW10 Pacific Highway – Wyong Town Centre: Road Pavement and Geotechnical Investigation Interpretive and Design Report** The report comprised a desktop review to provide recommendations for additional ground investigations. An additional potential source of contamination was identified, being an underground storage tank at 146 Pacific Highway (near the Aldi shopping centre).
SMEC (2014)	***Pacific Highway Upgrade through Wyong Town Centre: Geotechnical Investigations Plan*** *"There is a risk of potential disturbance of asphalt / coal tars. Evidence (visual and olfactory) of pavement layers containing coal tar was recorded in a number of test pits in both historical RMS and current investigations. A strong odour of contamination was noted in T051 (Sydney Trains maintenance yard) in the depth range 0.5 to 1.0m. Contamination testing should be considered during design stages of the project."* T051 reportedly encountered residual soil directly beneath unbound pavement fill material.
SMEC (2015)	**Pacific Highway Upgrade through Wyong Town Centre: Soil and Water Technical Paper** The technical paper identified the potential impacts that the project may have on soil and water environments and the management measures that would be appropriate to apply to mitigate the potential impacts. The report was prepared to support the initial Review of Environmental Factors (REF) (2015) for the proposed upgrade works. The report concluded further investigation would be required where ancillary sites are proposed to facilitate construction works, additional contaminated land assessment in accordance with the relevant NSW EPA guidelines would be undertaken to assess the suitability of the site and any management measures that may be required.
SMEC (2016)	**Pacific Highway Upgrade through Wyong Town Centre: Geotechnical and Contamination Factual Report** Supplementary geotechnical and contamination ground assessment for the Wyong Town Centre Upgrade to assist with the concept design of the project. The investigation comprised drilling nine combined geotechnical and environmental boreholes, and eight environmental boreholes to depths ranging from 4 to 29 metres below ground level (mbgl) using truck and track-mounted drilling rigs. Three groundwater monitoring and sampling wells were installed in pre-selected locations. Soil samples were analysed for heavy metals, TRH, BTEX, PAHs, PCBs, OCP, OPPs and asbestos. All results were stated to be less than the adopted human health based assessment criteria, however AECOM notes the following exceedances: • BHE20_0-0.1: benzo(a)pyrene TEQ (LOR) – 55 mg/kg (NEPM 2013 – HIL D – 40 mg/kg) (located adjacent to Shell service station) • BHE22_0-0.1: benzo(a)pyrene TEQ (LOR) – 58 mg/kg (NEPM 2013 – HIL D – 40 mg/kg) (located adjacent to Aldi) Asbestos containing material (ACM) was detected in three samples from the rail corridor: • SP2 Pipe (stockpile sample) • BHE07 (surface sample) • BHE08 (surface sample) The sampling locations are shown on Figure 4.2 in **Appendix C** extracted from SMEC (2016).

Reference	Report title and summary
ARCADIS (2018)	**Geotechnical Interpretive and Design Report – Wyong Station: New Intercity Fleet Program – Station and Signalling Enabling Works for Central Coast and Newcastle Line** Arcadis was engaged by Downer EDI Pty Ltd (Downer), to undertake geotechnical interpretation and detailed design for the Station and Signalling Enabling Works (SSEW) for the New Intercity Fleet (NIF) program commissioned by TfNSW. The scope included contamination assessment from two boreholes within the rail corridor adjacent to Wyong Station. No comparison / interpretation of environmental results were undertaken by Arcadis. An initial screen of these results indicate that they are generally <LOR, with a few minor detections; however AECOM notes that the shallowest sample was collected at 1.5 mbgl.
AURECON (2020)	**Pacific Highway upgrade Wyong Town Centre: Geotechnical Investigations Scope and Brief Review** Aurecon was commissioned by TfNSW to undertake a review of the geotechnical investigations scope and brief for the proposed Pacific Highway upgrade through Wyong town centre project. The report included a recommended sampling and analysis scope of works.
LOTSEARCH (2023) *(on behalf of AECOM)*	**Pacific Highway, Wyong, NSW 2259** AECOM requested an "EnviroPro" report from Lotsearch to assist with the development of this SAQP, and to identify notable changes to the site area and surrounds with regard to contamination since the Phase 1 in 2013. The report presents data gathered from over 600 separate datasets to note potential contamination sources and receptors. Historical and active businesses pose risk of contamination in the project area (i.e. dry, cleaners, motor garages, and service stations).
AECOM (2024)	**Sampling, Analysis and Quality Plan 1, Wyong Town Centre - Environmental Assessment** As part of the preparation of the SAQP (AECOM, 2024), a review of site history was undertaken to inform the 10 year data gap between the original PB (2013) PSI for the project area undertaken in 2013 and 2023. Additional potential contamination sources identified in the review were: • A former dry cleaners (Wyong Dry Cleaners, Railway Square) listed in UBD records in 1961 and 1970 (potential off-site source of chlorinated hydrocarbons/ VOCs) • Wyong Fire Station located approximately 70 m west of the road works upgrade area (potential off-site source of PFAS contamination). Based on the review the areas of environmental concern (AECs) and COPC were updated and documented in the SAQP.

5.9 Preliminary conceptual site model

The preliminary conceptual site model (CSM) for the project area was developed in the SAQPs (AECOM, 2024a/b) and was considered in its current and proposed ongoing public infrastructure use. A CSM describes the source-pathway-receptor (S-P-R) exposure pathways that may be present. For a receptor to be exposed to a chemical contaminant, a complete exposure pathway must exist. An exposure pathway describes the course a chemical or physical agent takes from the source to the exposed individual or ecological receptor.

The surrounding project area was also considered to potentially factor in existing commercial and industrial uses which may have direct or indirect effects to the project area. The preliminary CSM is presented in **Table 7** to **Table 9**. Due to the insufficient data prior to this investigation all S-P-R pathways were considered potentially incomplete. A risk ranking of low, moderate and high was applied based on the likelihood and severity of the risk being present. The revised CSM based on interpretation of the results from this DSI is presented in **Section 10.1**.

Table 7 Areas of environmental concern (AECs)

AECs	Potential contamination sources	Typical associated CoPC	AEC Risk ranking
AEC 1: Ampol Service Station,	Underground petroleum storage	TRH, BTEXN, PAHs, Lead, Phenols	Moderate
AEC2, 3 & 4: Various industrial warehouses and mechanical workshops adjacent to project area	Mechanical workshop Potential for underground storage tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, Solvents, ACM	Moderate
AEC 5: Auction house. Directly in footprint of project area	Storage of motor vehicles	TRH, BTEXN, PAHs, Metals, Phenols, Solvents, ACM	Moderate
AEC6: Electrical sub-station adjacent to project area	Electrical transformers	Metals, Polychlorinated Biphenyls (PCB)	Low
AEC7: Wyong Train station, not directly impacted by development	Unregulated fill material	ACM, TRH, BTEXN, PAH, Phenols, Pesticides, PCB, Metals	Low
AEC8: Recreational Building	Building materials	ACM, Lead (Paint)	Moderate
AEC9: Empty building lot in footprint of development. Building demolished 2020	Building materials	ACM, Lead (Paint)	Moderate
AEC10: Water Pumping station	Water processing	Aluminium, Arsenic, Cadmium, Chromium, Cobalt, Lead, Nickel, Lime, Zinc and Fluoride	Low
AEC11: Shell service station directly adjacent. Associated Carwash. Nearby Fire Station	Underground petroleum storage Historical use/storage of Aqueous Film Forming Foam (AFFF)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, PFAS, asbestos	High
AEC12: Car Repairs / Workshop	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, Solvents, resin, asbestos	Moderate
AEC13: RailCorp holding facility	Former odours identified by PB (2014) in testpit T051 (0.5-1.0 mbgl)	TRH, BTEXN, PAHs, Phenols, Metals, Nitrates and Ammonia	Low
AEC14: Used car dealership	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, Chlorinated Hydrocarbons (CHC), Ammonia, PFAS and ACM	Moderate

AECs	Potential contamination sources	Typical associated CoPC	AEC Risk ranking
AEC15: Potential uncontrolled fill on river banks	Potential uncontrolled fill on river banks	TRH, BTEXN, PAH, Phenols, Pesticides, PCB, Metals and ACM	Moderate
AEC16: Former Service Station	Former Service Station (now vacant land) ACM previously identified on surface	TRH, BTEXN, PAHs, Lead, Phenols and ACM	Moderate
AEC17: Area adjacent to Pacific Highway and railway	Unregulated fill material	ACM, TRH, BTEXN, PAH, Phenols, OC, OP, PCB and Metals	Low
AEC18: Former Dry Cleaners / adjacent former Sheet Metal Workers / former Lubricating Oils	Former Dry Cleaners / former Lubricating Oils / adjacent former Sheet Metal Workers	Volatile Organic Compounds (VOCs), TRH, PAHs, Phenols, Metals and ACM.	Moderate
AEC19: Former Motor Painters and Panel Beaters	Former Service Station	TRH, BTEXN, PAHs, Metals, Phenols, CHCs and ACM	Moderate
AEC20: Potential ACM pipe	Potential ACM pipe	ACM	Moderate
AEC21: Potential former UPSS (ALDI Site)	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, Solvents, resin, asbestos	Moderate
AEC22: Former “Fibrous Plaster Manufacturers” and potential former Service Station	Former Fibrous Plaster Manufacturers and potential former Service Station	ACM, TRH, BTEXN, PAH, Metals	Moderate
AEC23: Current Service Station	Current 7-Eleven Service Station	TRH, BTEXN, PAHs, Lead and Phenols	Moderate
AEC24: Fill - Adjacent Pacific Highway northern end of project area	Unregulated Fill material	TRH, BTEXN, PAH, Phenols, OC, OP, PCB and Metals	Low
AEC25: Coal Tar Pavements	PB (2014) - Areas where coal tar was noted on the pavement core engineering logs include: C058 and C070 (PB, 2014); and 2037-55, 2037-56, 2760-S3A, 2760-S4B, 2760-N2B, 2760-N2A and 2760-N3A (TfNSW).	PAH, Phenols and Benzo(a)Pyrene (BaP).	Moderate
AEC26: Potential ACM Pipe	Potential ACM pipe	ACM	Moderate

Table 8 Potential transport mechanisms, receptors and pathways

Item	Description
Transport mechanisms	• Potential leaks and spills during site construction works to surrounding soils. • Potential release of HAZMAT to surface soils during demolition of current buildings and houses within the Project Area. • Aerial dispersion of potentially contaminated soil derived dusts during construction works. • Leaching of contaminants from soils to groundwater and subsequent migration. • Volatilisation of volatile CoPC within soil and groundwater. • The release of contaminants from soils to surface water-run off and subsequent migration through the surface water network. • Sorption of contaminants from surface water to sediments and potential rerelease during high flow events or sediment disturbance. • Potential release of contaminants from groundwater where dewatering processes may occur. • Potential application of contaminants to soils during wetting down procedures where potentially contaminated waters (such as dewatered groundwater) may be beneficially reused on-site.
Human health receptors	• Intrusive maintenance workers including intrusive maintenance workers who may be involved in construction works during the development of the Highway upgrade and future sub-surface maintenance workers upon the completion of construction activities. • Commercial workers who may be present during construction but undertake no intrusive works (this is considered to include site visitors). • Offsite receptors such as surrounding residents, commercial and agricultural workers is outside of the scope of this DSI and have therefore not been considered further.
Ecological receptors	• Aquatic ecological receptors in of the Wyong River estuary and associate tributaries. • Terrestrial ecological receptors present within the project area.

Table 9 Potentially exposure pathways – human health

Exposure Pathways / Receptors	Dermal contact and incidental ingestion of soil	Inhalation of soil derived dust in indoor and outdoor air	Inhalation of soil and groundwater derived vapour in indoor and outdoor air	Dermal contact and incidental ingestion of groundwater	Dermal contact and incidental ingestion of surface water and sediments
Intrusive maintenance workers	ü	ü	ü	ü	ü
Commercial workers and site visitors	û[1]	ü	ü	û	û

Notes:
[1] Commercial workers and site visitors are not expected to undertake intrusive works on-site where they may come in contact with soil, groundwater, surface water or sediments.

6.0 Methodology

6.1 Preliminaries

All service locations were searched prior to intrusive works using AECOM's underground services clearance procedure including:

- review "Before You Dig Australia (BYDA)" plans for the site as part of assessment of potential services in the vicinity of the investigation area
- review of site-specific plans where available
- clearing and marking of each sample location by an accredited service locator.

6.2 Soil investigation

A total of 52 boreholes, 18 test pits, five hand augers and two pavement cores were completed for the soil investigation. The investigation methodology completed is described in **Table 11**. The investigation locations are shown on **Figure 2.A** to **2.E** in **Appendix A**

The soil investigation was completed during two mobilisations as detailed in **Table 10**. Environmental soil sampling was conducted simultaneously during the geotechnical investigation work. The sampling locations were labelled as the aligned geotechnical for convenience of the site work and quality purposes.

Investigation locations completed along with completion date, termination depth and method type are listed in **Table B1** in **Appendix B**. Borelogs and test pit logs are presented in **Appendix F**.

Table 10 Soil investigations

Mobilisation	Type	No.	Locations		
28 October to 21 December 2023	Boreholes	23	A-BH03 A-BH06 A-BH09 A-BH13 A-BH14 A-BH15 A-BH16A ACM-BH12A ACM-BH05/ACM-BH05A	ACM-BH09 BH25 BH09 BH40 BH46 R-BH19 R-BH20B R-BH26A	R-BH27A R-BH29 R-BH30 R-BH34 R-BH35A R-BH36
	Test pits	7	A-TP13 ACM-TP03 ACM-TP05	ACM-TP08 ACM-TP13 ACM-TP17	ACM-TP18
February to April 2024	Boreholes	29	A-BH17 BH05 ACM-BH04 ACM-BH09A BH01A/GW01A BH02A BH04/BH04A BH06 BH25 BH26/GW26/SV1 BH27/GW27/SV2	BH28A BH28/GW28/SV3 BH29/GW29/SV4 BH30/GW30 BH32 BH33A BH35/GW35 BH39/GW39 BH41 BH42/GW42	R-BH09 R-BH08A R-BH10A R-BH16A R-BH13 R-BH13A R-BH28 R-BH37
	Test pits	11	A-TP05 ACM-TP01 ACM-TP09 ACM-TP11	ACM-TP15 ACM-TP16 ACM-TP19A R-TP03	R-TP07 R-TP11 R-TP12

Mobilisation	Type	No.	Locations		
				R-TP06	
	Hand auger	5	HA56 HA57	HA58 HA59	HA60
	Pavement cores	2	ACM-CO07	R-CO01A	

Notes: (A) denotes second location/attempt due to refusal

Table 11 Soil investigation methodology

Activity	Details
Soil sampling –hand augers & solid stem auger	Soil samples were collected from surface (avoiding turf and/or road base materials), within underlying fill, at changes in soil profile, and from the natural soils (if encountered). The following approach was undertaken: • where fill material was identified from surface, contamination sampling/observations continued until at least 1m into natural material and to a minimum depth of 3.0 m bgs. • where natural material was observed from the surface, contamination sampling/observations is to continue until 3.0 m bgs. Boreholes were backfilled in the order of excavation following the completion of soil sampling activities. Completed boreholes that were not converted into monitoring wells were grouted to the ground surface. Excess drilling cuttings were placed into skip bins for storage prior to off-site disposal to a licensed waste facility after waste classification. Waste disposal records are included in **Appendix J.**
Soil sampling – test pits	Test pits were advanced following service location by scraping the surface with a flat edge bucket in 200 mm intervals for the top 1.5 m bgs. Test pits were inspected following every scrape for evidence of potential unidentified services. All excavated soil materials were inspected for visual indicators of potential asbestos containing materials (ACM). Where visual assessment indicated the potential for ACM a sample was collected for absence / presence. Soil samples were collected directly from the centre of the bucket where soil was not in contact with the bucket walls. Soil samples were collected from surface (avoiding turf and/or road base materials if present), within underlying fill, at changes in soil profile, and from the natural soils (if encountered), up to a maximum depth of 5 m bgs. Additional samples were collected where evidence of contamination was observed. Test pits were backfilled in the order of excavation following the completion of soil sampling activities.
Soil sampling – large diameter boreholes / Test pit locations on road	Test pit and pavement core locations on the road were drilled using a large diameter (260 mm) auger on a pavement coring truck. The existing asphalt and/or concrete layers were cored using a diatube or handheld concrete corer. Soil samples were collected directly from the auger. Large diameter test pits and pavement cores were backfilled in the order of excavation following the completion of soil sampling activities.
Sample handling and preservation	Samples were handled using a clean pair of disposable nitrile gloves. A new pair of nitrile gloves will be worn for each sample collected. Samples were collected into the following laboratory-supplied sample vessels: • glass jars fitted with Teflon-lined lids and filled with zero headspace remaining (to minimise the loss of VOCs) for chemical analysis (except PFAS) • HDPE jars for PFAS

Activity	Details
	• zip lock plastic bags (asbestos). Samples were labelled with details including: • date and time sampled • project number • field ID • sample preservatives used. Samples for chemical analysis were placed into insulated eskies with ice immediately after sampling and then stored in the fridge until transit to the laboratory. Samples were transported to the primary laboratory under chain of custody (COC) protocol.
Soil logging	The soil profile was logged during the intrusive works in accordance with Australian Standard (AS) AS1726. Samples were logged and information recorded in the field (e.g. soil/rock type, colour, grain size, inclusions, moisture conditions, staining and odour etc.).
Soil screening	Soil sub-samples were placed in snap-lock plastic bags and the vapour headspace screened in the field for VOCs using a calibrated photo-ionisation detector (PID) equipped with a 10.6 eV lamp. The headspace reading will be taken at ambient temperature (not in sun) and approximately 5 minutes after collection of the sample. The headspace readings will be recorded on the bore logs.
Sample coordinates	GPS coordinates will be collected at all sampling locations by a project surveyor.

6.3 Asphalt cores

Asphalt cores were sampled by extracting fragments of pavement from selected cores. The sample was collected from layers within the core which indicated potential presence of coal tar. A total of 24 samples were collected and submitted to the laboratory for analysis for the presence/absence of coal tar.

6.4 Groundwater investigation

The groundwater investigation methodology completed is described in **Table 12**. The groundwater monitoring wells were installed during both drilling mobilisations. Groundwater monitoring wells were developed after they were installed. The groundwater sampling event of new and existing monitoring wells was conducted between 10 and 12 April 2024.

Groundwater monitoring well locations installed along with completion date, termination depth and method type are listed in **Table B1** in **Appendix B**. Groundwater monitoring well locations are shown on **Figure 2.A** to **2.E** in **Appendix A**. Installation details are included in construction logs are in **Appendix F**.

Table 12 Groundwater investigation

Activity	Details
Groundwater monitoring well installation	Where groundwater was identified at depths <10m bgs during drilling a machine slotted and solid uPVC casing was installed into the borehole, followed by backfilling with washed sand around the slotted screen section and a bentonite seal above the slotted section. The annulus around the well casing was then backfilled to surface with grout. New monitoring wells were developed within 24 hrs of installation. Groundwater development comprised purging a minimum of 3 times well volumes or until dry (whichever occurred first).

Activity	Details
	Following installation, the elevation of the top of PVC casing of the newly installed groundwater monitoring wells were surveyed to metres Australian Height Datum (m AHD), for groundwater elevation contouring purposes. Surveying was undertaken by a registered surveyor. Survey also included collection of GPS coordinates for each well.
Groundwater gauging	Measurement of standing water levels (SWLs) in all newly constructed groundwater monitoring wells were conducted in accordance with the AECOM standard operating procedure (SOP) for Groundwater Level Gauging. All measurements were taken within one day, and in as close succession as possible, using a calibrated oil/water interface probe (IP). All measurements were taken from the same point at the top of the uPVC casing (a notch, or mark was placed into the edge of the casing to assure consistency in measurement). All measurements were recorded to 3 decimal places.
Groundwater sample collection	Groundwater samples were collected from the wells using low-flow sampling techniques in accordance with AECOM SOP for Groundwater Sampling (Low Flow Pump). Sampling of the newly installed monitoring wells was conducted at least a week after installation to allow for the groundwater to recharge and suspended sediments to settle. Prior to sampling, monitoring wells were purged (to ensure connectivity with the wider aquifer) using peristaltic pump fitted with High Density Polyethylene (HDPE) tubing, with the tubing intake set at the approximate midpoint within the well screen interval. Monitoring wells were purged until *ex-situ* measurements of groundwater field parameters had stabilised. Parameters were considered stable when consecutive readings over four minutes are recorded within: • ± 10% for dissolved oxygen (DO) • ± 3% for electrical conductivity (EC) • ± 0.05 for pH • ± 10mv for redox potential (ORP) • ± 0.2°C for temperature.
Sample handling and preservation	Sampling was undertaken using a clean pair of disposable nitrile gloves for each well. Samples were collected into laboratory supplied bottles and vials (with appropriate preservatives as applicable). Vials for were filled with zero headspace. Groundwater samples for metals analysis were field filtered with a 0.45 µm disposable filters prior to preservation. Samples were labelled with details including: • date and time sampled • project number • field ID • sample preservatives used. Samples for chemical analysis were placed into insulated eskies with ice immediately after sampling. The samples were transported to the primary laboratory under chain of custody (COC) protocol.

6.5 Soil vapour

The soil vapour investigation methodology completed is described in **Table 13**. Soil vapour monitoring well locations are shown on **Figure 2.E** in **Appendix A**. Installation details are included in construction logs are in **Appendix F**. The soil vapour monitoring wells were installed on the following dates:

- BH26/GW26/ SV01: 24 March 2024
- BH27/GW27/SV02: 25 March 2024
- BH28/GW28/SV03: 26 March 2024
- BH29/GW29/SV04: 26 March 2024

Soil vapour sampling was undertaken on the 23 April 2024.

Table 13 Soil vapour methodology

Item	Details
Well installation	The bores were drilled to the maximum depth of 3m bgs or 0.5m above the groundwater depth. A Teflon lined tubing attached to the soil vapour probe and the probe placed at the bottom of the well vertically. Borehole backfilled with washed sand above 0.1m above the probe level followed by 0.1m dry bentonite and wet bentonite. The annulus around the well casing was then backfilled to surface with grout. The probes were installed at the following intervals: • SV1: 1.4 - 1.5 mbgl (shallow) and 2.9 -3.0 mbgl (deep) • SV2: 0.5 - 0.6 mbgl • SV3: 1.6-1.9 mbgl • SV4: 2.3 -2.4 mbgl
Well leak detection	Integrity / leak testing was carried out on the soil vapour wells. The initial PID reading was recorded from the well before conducting the leak test. Leak detection was conducted for a period of 5 minutes using isopropanol, in accordance with the AECOM SOP for soil vapour leak detection. The following was undertaken: • A shroud was placed over the well, and the sampling line was passed through a hole (port) in the bucket. An isopropanol soaked cloth placed in the in an open ziplock bag beneath the shroud. The edges of the shroud were sealed with wetted washed sand • Allow the isopropanol to evaporate and fill in the shroud. • Record the PID reading in the shroud before starting the leak test. • PID readings was taken from the sampling line approximately for 5 minutes after the initial reading. Stabilised PID reading in the sampling line and the final concentration in the shroud recorded. • The collected canister samples were also analysed for isopropanol.
Well Purging	Prior to sampling, soil vapour sampling locations were purged using a sterile syringe to remove a known purge volume. Measurements were taken with a PID and a landfill gas analyser (used to obtain stabilised readings of carbon dioxide, oxygen and methane) prior to and after sampling to assess well integrity and to ensure field parameters were stable and well atmosphere representative of surrounding environment. Well purging parameters were recorded.

Item	Details
Well Sampling	The sampling was conducted using stainless steel evacuated canisters as per the AECOM Field Quality Manual (FQM) 3.06 Soil Vapour Sampling – Stainless Steel Canister. A laboratory supplied stainless steel flow controller attachment was set collect the sample at a constant rate over the set period: allowing a time-weighted average air concentration to be obtained.
Quality Control Sampling	One duplicate sample was collected per event and leak detection testing was carried out using isopropanol.
Sample handling and preservation	At completion of sampling the canister valve was closed, and samples were transported to the primary laboratory under chain of custody (COC) protocol.

6.6 Decontamination

Decontamination is performed for field equipment to eliminate the possibility of cross-contamination from previous jobs or between sampling locations. In general, decontamination consisted of washing equipment in a PFAS free detergent solution (Liquinox) followed by deionised, distilled, or clean water rinse(s).

Decontamination was performed before initial use of any equipment at the site and after each subsequent use. Decontamination procedures were utilised during soil boring, well installation and groundwater sampling on all reusable equipment.

Following completion of sampling and decontamination of sampling equipment, one rinsate blank sample was collected per day of sampling to assess the effectiveness of decontamination protocols. The rinsate sample was collected by running laboratory supplied distilled water over a decontaminated item and decanting directly into laboratory-prepared sample bottles.

6.7 Laboratory analysis

All samples were relinquished to:

- Australian Laboratory Services (ALS) - the primary laboratory for soil and groundwater samples (NATA accreditation #825)
- Eurofins Scientific (Eurofins) – the secondary laboratory for soil and groundwater samples, primary laboratory for soil vapour samples (NATA accreditation #1261)
- Envirolab Group (Envirolab) – the primary laboratory for coal tar analysis (NATA accreditation #2901)

The sample analysis suites are summarised in **Table 14.** Laboratory methods by the primary laboratory are detailed in the Quality Control Interpretive (QCI) reports in **Appendix H**.

Table 14 Laboratory analysis

Analysis suite	Primary samples	Intra-laboratory duplicates	Inter-laboratory duplicates	Rinsate samples	Trip blanks	Trip spikes
Soil samples						
Heavy metals	141	10	13	27	-	-
Volatile TRH/ BTEXN	133	18	12	27	18	20
Semi-volatile TRH/TPH	133	18	12	27	-	-
PAHs	124	13	11	23	-	-
Phenols	100	8	7	8	-	-

Analysis suite	Primary samples	Intra-laboratory duplicates	Inter-laboratory duplicates	Rinsate samples	Trip blanks	Trip spikes
PCBs	49	0	0	3	-	-
OCPs	47	0	0	4	-	-
OPPs	44	0	0	4	-	-
PFAS	29	5	6	5	-	-
VOCs/VHCs	45	5	4	3	-	-
Total and WAD cyanide	3	0	0	0	-	-
Ammonia	8	1	1	0	-	-
Nitrate, nitrite, NOx as N	3	0	0	0	-	-
Asbestos quantification	21	0	0	0	-	-
Asbestos absence/presence	59	0	0	0	-	-
pH	14	0	0	0	-	-
CEC	6	0	0	0	-	-
Clay content	3	0	0	0	-	-
Chloride, sulfate	5	0	0	0	-	-
Electrical conductivity	8	0	0	0	-	-
Foreign materials	16	0	0	0	-	-
Asphalt core samples						
Coal tar presence	24	0	0	0	0	0
Groundwater samples						
Total heavy metals	11	1	1	4	-	-
Dissolved heavy metals	5	1	1	4	-	-
Volatile TRH/ BTEXN	16	1	1	4	1	-
Semi-volatile TRH/TPH	16	1	1	4	-	-
PAHs/phenols	16	1	1	4		-
PFAS	5	1	1	2	-	-
VOCs/VHCs	11	1	1	2	-	-
Ammonia	2	1	1	0	-	-
Electrical conductivity	9	0	0	0	-	-
pH	10	0	0	0	-	-
Soil vapour						
TRH/BTEXN	2	0	0	-	-	-
VOCs	2	0	0	-	-	-

7.0 Assessment criteria

7.1 Soil

7.1.1 Human health

The adopted Tier 1 soil assessment criteria is outlined in Table 15.

Table 15 Human health assessment criteria

Selected Assessment Criteria	CoPC	Rationale
ASC NEPM (2013): • Soil Health Screening Level (HSL) D • Health Investigation Level (HIL) D	• TRH • BTEXN • PAH • Metals • Phenols • Cyanide • Asbestos 1	The HSLs presented in the ASC NEPM (2013) and CRC CARE (2011) for petroleum hydrocarbons in soil were developed to be protective of human health by determining the reasonable maximum concentration from on-site sources for a range of situations commonly encountered on contaminated sites. The HILs are scientifically based, generic assessment criteria designed to be used in the first stage of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario for four generic land use settings: • HIL A - Residential with garden/ accessible soil • HIL B - Residential with minimal soil access (e.g. paved yards, high rise buildings) • HIL C - Public open space such as parks and playgrounds • HIL D - Commercial/industrial (e.g. factories, industrial sites)
CRC CARE (2011a)[2]: *Technical Report No.10 - Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater*. September 2011. (Friebel, E. and Nadebaum, P., 2011): • HSL D (dermal contact)	• TRH • BTEXN	
CRC CARE (2011b)[3]: • Intrusive Maintenance Worker (dermal contact) • Intrusive Maintenance worker HSL		
US EPA Regional Screening Level (RSLs): • Industrial Soils (revised biannually)	• CoPC without HILs or HSLs	Where no guideline value is available from Australian guidelines, values will be adopted from the US EPA RSLs. The US EPA RSLs present values for residential soil and industrial soils.
PFAS NEMP 2.0: • Commercial / Industrial Soils.	• PFAS	The PFAS NEMP presents guidelines values to protect human health and ecological receptors from PFAS impacts.

For the assessment of asbestos, an initial screening level of absence/presence of asbestos fibres in soils was adopted. In the event that fragments of ACM are encountered, or asbestos fibres detected in samples, further assessment of the nature and extent of ACM at the project area will be made before remediation and/or management options are considered.

[1] As based on NEPM guidelines for managing Asbestos in Soil

[2] Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) *Technical Report No.10 - Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater*. September 2011. (Friebel, E. and Nadebaum, P., 2011)

[3] CRC CARE *Technical Report No. 10, Part 2 – Intrusive Maintenance Worker (Shallow Trench) Health Screening Levels*. September 2011

ASC NEPM (2013) and CRC CARE (2011a and 2011b) include limited criteria for SVOCs (other than pesticides and TRH) and VOCs (other than BTEX and volatile TRH). Where no criteria are available, the laboratory limit of reporting (LOR) was adopted as a screening concentration, above which, further assessment may be required.

7.1.2 Ecological

As the project area is to be developed into a road with minimal landscaped areas on verges ecological criteria for soil has not been adopted.

7.1.3 Management limits

Petroleum hydrocarbon management limits are screening levels from the ASC NEPM (2013) that are applicable following evaluation of human and ecological health. They are intended to assess other impacts that are not considered in the application of HSLs, such as explosive or fire hazards, impacts to subsurface infrastructure and the formation of light non-aqueous phase liquids (LNAPL).

They are applicable for operating sites where significant sub-surface leakage of petroleum compounds may have occurred, and when decommissioning industrial and commercial facilities. The management limits may have less relevance at operating industrial sites which have no or limited sensitive receptors in the area of potential impact. Exceedance of management limits does not imply that remediation is necessary, though may trigger further site-specific assessment to enable any identified risks to be addressed.

Soil and sediment analytical results for petroleum hydrocarbons will be screened against the management limits for commercial and industrial land use if petroleum-type contamination is detected at concentrations greater than the LOR, and if the criteria protective of Human Health are not exceeded.

7.1.4 Waste

The soil results were compared to the threshold criteria (**Table 16**) in the NSW EPA (2014) Waste Classification Guidelines: Part 1 Classifying Waste and the NSW EPA (2018) addendum for PFAS.

Table 16 Waste classification criteria

Acronym	Waste classification criteria
CT1	Contaminant threshold for general solid waste
CT2	Contaminant threshold for restricted solid waste
SCC1	Specific contaminant concentration threshold for general solid waste (with TCLP results)
SCC2	Specific contaminant concentration threshold for restricted solid waste (with TCLP results)
TCLP1	TCLP threshold value for general solid waste
TCLP2	TCLP threshold value for restricted solid waste

The soil results were also compared against the ‘absolute maximum concentration’ (Column 3) in NSW EPA (2014) *The excavated natural material order 2014.* As a full assessment against the order was not undertaken (appropriate sampling densities were not collected) results were not compared to the ‘maximum average concentration for characterisation’.

7.2 Groundwater

The adopted Tier 1 groundwater assessment criteria is outlined in Table 17.

Table 17 Groundwater assessment criteria

Guideline	CoPC	Rationale
Human Health – Vapour Inhalation		
ASC NEPM (2013) (groundwater only)	• TRH • BTEXN	HSLs are provided in the ASC NEPM to assess the risk for vapour inhalation arising from petroleum hydrocarbon sources in groundwater. The HSLs are based on the same land use scenarios as for soil HSLs. The HSL D – Clay – 2 to <4m (commercial/industrial) will be adopted based on anticipated groundwater conditions in the project area.
Human Health – Incidental Ingestion and Dermal Contact		
National Health and Medical Research Council (2008). *Australian Drinking Water Guidelines* (ADWG, 2021)*.	• TRH • BTEXN • PAH • Phenols • Pesticides • VOC/ SVOC • Metals	In accordance with the approach recommended by National Health and Medical Research Council (NHMRC) (2008) *Guidelines for Managing Risk in Recreational Waters*, the ADWG (2021) were increased by a factor of 10 in order to produce suitable recreational criteria. It is considered that recreational criteria are suitable for assessing the risk to intrusive maintenance workers during construction works where workers may come in contact with groundwater impacts.
HEPA (2020) *PFAS National Environmental Management Plan (NEMP 2.0)*	• PFAS	The values presented in the NEMP (2020) are from the Department of Health (2017), which published final health-based guidance values for PFAS for use in site investigations in Australia. The DoH utilised the Tolerable Daily Intake for PFOS and PFOA from Food Standards Australia New Zealand (2017) and utilised the methodology described in NHMRC (2008) (application of 10x drinking water concentration) to determine appropriate recreational criteria for each compound.
Ecological criteria		
Australian and New Zealand Governments and Australian state and territory governments (ANZG), 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*	• Metals • Ammonia • VOC/ SVOC	As the nearest water body Wyong River is a slightly to moderately disturbed estuary, the freshwater and marine species 95% protection guideline values have been adopted for screening purposes. The 99% values have been adopted for bioaccumulating chemicals.
HEPA (2020) PFAS National Environmental Management Plan (NEMP 2.0)	• PFAS	Australian and New Zealand Guidelines for Fresh and Marine Water Quality -technical draft default guideline values for PFOS and PFOA. The guidelines advise that the 99% level of protection be used for slightly to moderately disturbed systems. This approach is generally adopted for chemicals that bioaccumulate and biomagnify in wildlife. Noting that the limit of reporting (LOR) is greater than the 99% value, the LOR has been adopted as the screening value.

Guideline	CoPC	Rationale
		As the nearest water body Wyong River is an estuary freshwater and marine species the 99% and 95% protection guideline values have been adopted for screening purposes. It is noted that the values are the same for fresh and marine water.

7.3 Soil vapour

The adopted Tier 1 soil vapour assessment criteria is outlined in Table 18.

Table 18 Soil vapour assessment criteria

Guideline	CoPC	Rationale
Health Screening Levels (HSL), Amended ASC NEPM (NEPC, 2013)	TRH BTEXN	The NEPM presents health screening levels (HSLs) for petroleum compounds which have been derived through consideration of risks to human health, with the main focus being on the vapour exposure pathway. The HSLs have been calculated using parameters that generally correspond to data available and as such aim to provide levels that are realistic rather than overly conservative. Full detail on their derivation and their application is provided in Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report No.10 - Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (September 2011, Friebel, E. and Nadebaum, P). The project area is a highway and associate arterial Roads, therefore the applicable land use selected is commercial industrial (D). The adjoining land uses are commercial, with low density residential. The purpose of this assessment is to consider risks within the road upgrade footprint, therefore offsite residential has been excluded. The infrastructure zoning of the road has been used to derive the applicable land use of Commercial Industrial (D).
Intrusive Maintenance Worker (Shallow Trench) Health Screening Levels, CRC CARE Technical Report No. 10, Part 2	TRH BTEXN	Maintenance workers involved in subsurface works may be exposed to contamination inside trenches. As such HSLs have been derived for utility workers working in shallow trenches (maximum trench depth of 1 m). **HSLs for intrusive maintenance workers are non-limiting (NL) for all compounds with the exception of benzene, naphthalene and TRH F2 fraction** for soil vapour. Criteria for assessing data to be selected following installation of soil vapour wells confirming depth profile and soil type.

<table>
<tr><th>Guideline</th><th>CoPC</th><th>Rationale</th></tr>
<tr><td>Interim soil vapour HILs Amended ASC NEPM (NEPC, 2013)</td><td>TCE, 1,1,1-TCA, PCE, cis-1,2-dichloroethene, vinyl chloride</td><td>Interim HILs for volatile organic chlorinated compounds (VOCCs) are conservative soil vapour concentrations that can be adopted for the purpose of screening sites where further investigation is required on a site-specific basis. They are based on the potential for vapour intrusion using an indoor air-to-soil vapour attenuation factor of 0.1 and an outdoor air-to-soil vapour attenuation factor of 0.05. Land use settings are equivalent to those described in
<u>HSLs adopted:</u>
Commercial/Industrial D</td></tr>
<tr><td>DECCW (2010) Vapour Intrusion Technical Practice Note</td><td>VOCs</td><td>DECCW (2010) provides reference concentrations for the following commonly occurring chemicals:
<table>
<tr><th>Chemical</th><th>IARC group</th><th>Current RfC *</th><th>Source</th></tr>
<tr><td>Benzene</td><td>1</td><td>1.7 µg/m^3</td><td>WHO 2000</td></tr>
<tr><td>Toluene</td><td>3</td><td>260 µg/m^3</td><td>WHO 2000</td></tr>
<tr><td>Ethyl benzene</td><td>2B</td><td>1300 µg/m^3</td><td>ATSDR 2007</td></tr>
<tr><td>Xylenes</td><td>3</td><td>870 µg/m^3</td><td>WHO 1997</td></tr>
<tr><td>Naphthalene</td><td>2B</td><td>3 µg/m^3</td><td>USEPA IRIS</td></tr>
<tr><td>Chloromethane</td><td>3</td><td>18 µg/m^3</td><td>WHO 2000b</td></tr>
<tr><td>Dichloromethane</td><td>2B</td><td>450 µg/m^3</td><td>WHO 2000</td></tr>
<tr><td>Chloroform (trichloromethane)</td><td>2B</td><td>140 µg/m^3</td><td>WHO 2004</td></tr>
<tr><td>Vinyl chloride (chloroethene)</td><td>1</td><td>1.1 µg/m^3</td><td>USEPA IRIS</td></tr>
<tr><td>1,1-dichloroethene (1,1-DCE)</td><td>Not classified</td><td>200 µg/m^3</td><td>WHO 2003</td></tr>
<tr><td>Cis-1,2-dichloroethene (DCE)</td><td>Not classified</td><td>30 µg/m^3</td><td>RIVM 2001</td></tr>
<tr><td>1,2-dichloroethane (EDC)</td><td>2B</td><td>700 µg/m^3</td><td>WHO 2000</td></tr>
<tr><td>1,1,1,-Trichloroethane (1,1,1-TCA)</td><td>3</td><td>5000 µg/m^3</td><td>USEPA IRIS</td></tr>
<tr><td>Trichloroethene (TCE)</td><td>2A</td><td>23 µg/m^3</td><td>WHO 2000</td></tr>
<tr><td>Tetrachloroethene (PCE)</td><td>2A</td><td>200 µg/m^3</td><td>WHO 2006</td></tr>
</table>
* Current recommended reference concentration</td></tr>
</table>

7.4 Aesthetic considerations

In accordance with the ASC NEPM (2013), the following are the type of findings that would trigger the requirement for assessment of aesthetic considerations where further assessment hasn't already been triggered by an exceedance of an investigation or screening criteria:

- highly odorous soil or groundwater
- hydrocarbon sheens on groundwater
- discoloured soil or chemical deposits
- large monolithic deposits of otherwise low risk material
- soils containing residue from animal or abattoir waste burial.

The above aesthetic conditions were considered in the assessment

8.0 Assessment of QA/QC

8.1 Deviations from the SAQP

The following deviations in methodology from the SAQPs occurred during the investigations:

- Soil investigation:
  - Locations R-CPT-02 (BH08), R-TP05 (TP47), R-BH19 (BH20), ACM-TP07 (TP53) locations were not sampled, or the collected samples were not scheduled for analysis due to oversight.
  - The boreholes needed to be relocated due to underground service identified during hand-auger drilling or were re-drilled due contamination samples not being collected were labelled with an additional letter starting from the letter “A” (i.e. A-BH03A, R-BH10B)
  - The following additional borehole locations were sampled for environmental analysis which were not requested on the SAQP (AECOM, 2023):
    - R-BH35A – replacement location of the R-CPT02 (BH08)
    - BH05 – additional samples collected due to the data quality issues in the samples collected from ACM-TP18 (TP71)
    - A-TP05 – additional samples collected to have a better coverage in the targeted AEC
    - R-BH13 – additional samples collected to have a better coverage in the targeted AEC
    - ACM-BH05A – additional samples collected due to the data quality issues in the samples collected at the same location
    - R-BH13 – additional samples collected to have a better coverage in the targeted AEC
    - R-BH10A – additional samples collected to have a better coverage in the targeted AEC
    - ACM-TP08 – replacement location of the ACM-TP07(TP53)
    - BH06 – replacement location due to relocation of A-BH02 to opposite side of the road.
- Groundwater investigation:
  - The well BH39/GW39 was found dry all the time during the siteworks.
  - Groundwater samples collected from an existing well (PB-BH10) in the vicinity of the proposed well to be sampled BH39/GW39, which found dry.
  - An additional well was installed at A-BH17, at downgradient location AEC16, and extra groundwater samples collected.
  - An additional groundwater sample was collected from a well installed for the geotechnical investigation work, R-BH23, due to contingency.
  - Two existing wells installed were sampled (BH04 and BH10) instead of R-BH08.
- Soil Vapour Investigation:
  - Due to contingency two soil vapour pins were installed at different depths at SV1. One pin was installed at 3.0 m bgs (SV1D) and one pin installed at 1.5 m bgs (SV1S).
  - The soil vapour wells SV1D, SV1S, SV2, SV3, and SV4 were all found flooded during the first sampling attempt on 11 April 2024. Heavy rain likely caused the accumulation of water in the soil vapour wells due to a higher groundwater level or perched groundwater.
  - The soil vapour wells SV1D, SV1S and SV3 were found flooded during the second sampling attempt. The soil vapour samples were only collected from SV-2 and SV-4 on 21 April 2024.

All proposed locations and sampled locations are presented in **Figure 2.A** to **2.E** in **Appendix A**.

8.2 Data validation

The detailed data validation report is presented in **Appendix E**. The key findings of the data validation were:

- When using the PFAS soil data quantitatively it should be taken consideration PFAS detections have not been assessed against field blank data to assess for false positives/ overreporting of PFAS concentrations. As all PFAS results were less than the adopted assessment criteria there is no impact on the outcome of the assessment.
- The potential for under reporting of concentrations must be considered when using the data quantitatively and assessing against the relevant assessment criteria due to some batches received at temperatures above the recommended storage temperature of <6°C.
- Some samples were extracted and analysed outside recommended holding times. There is the potential for these analytes to have degraded over time and not be truly representative of field conditions. This potential under reporting should be taken into consideration when interpreting data for these analytes.

Based on the overall assessment of field and laboratory QA/QC data, the reported analytical results are considered, by achievement of the DQIs, to be reliable and representative of concentrations of the CoPC analysed at the locations sampled for the purposes of this investigation.

9.0 Results

9.1 Soil

9.1.1 Field observations

The lithologies encountered generally comprised fill material (typically sandy clay or clayey sand) followed by alluvial soil, residual soil, and bedrock (claystone). Observations of potential contamination recorded on soil logs included:

- ACM-BH09 – a slight petroleum odour at the interface of fill and natural soils at 1.8 mbgl
- ACM-BH12 – a strong hydrocarbon odour at 0.5 mbgl (borehole terminated at 0.8 m due to services) (corresponding PID VOC reading of 4.6 ppm)
- ACM-BH12A – a strong petroleum odour at 1.0 mbgl (corresponding PID VOC reading of 13.1 ppm)
- BH04A – a weak hydrocarbon odour at 0.5 mbgl (corresponding PID VOC reading of 2 ppm)
- BH40 – a weak petroleum odour at 0.1 to 0.5 mbgl (corresponding PID VOC reading of 3.9 ppm)
- R-BH26A – a slight aromatic odour at 0.1 to 0.2 mbgl (corresponding PID VOC reading of 4.1 ppm)
- R-BH27A – a strong petroleum odour at 0.4 to 0.8 mbgl (corresponding PID VOC reading of 16.1 ppm)
- ACM-BH09 – a slight petroleum odour at the interface of fill and natural soils 1.8 mbgl (corresponding PID VOC reading of 18.4 ppm)
- ACM-TP05 – black coal waste logged from 0.5 to 1.15 mbgl
- R-TP13 – a strong hydrocarbon odour from 1.1 to 1.4 mbgl in natural sandy clay (corresponding PID VOC reading of 2.2 ppm)

Fill containing demolition type waste was encountered in:

- ACM-TP17 at 0.7 to 1.6 m bgl (bricks)
- R-TP03 at 0 to 0.6 mbgl (brick, plastic, scrap metal, and paper)
- R-TP11 at 0.1 to 1.4 mbgl (ceramic and concrete)
- R-TP05 at 0.1 to 1.3 mbgl (trace plastic and brick)

Borelogs with full descriptions of encountered lithologies are included in **Appendix F**. A partially submerged and broken ACM conduit and stockpiles of spoil were observed in the vicinity of R-BH19 in the rail corridor (see photographs in **Appendix G**).

9.1.2 VOC field screening

PID field VOC readings ranged from <1 ppm to 65.4 ppm for the soil samples collected from the boreholes. Elevated VOC readings (>50 ppm) were recorded in the following samples:

- ACM-TP15 at 0.5 - 1.0 mbgl at 51.4 ppm (no odour noted)
- BH26 at 0.1 - 0.2 mbgl at 65.4 ppm (no odour noted)

PID VOC readings are included on borelogs in **Appendix F**.

9.1.3 Soil analytical results

Soil analytical results are presented and screened against the adopted assessment criteria in the following tables **Appendix B**:

- Table B2 – heavy metals
- Table B3 – TRH and BTEXN
- Table B4 – PAHs and phenols

- Table B5– PCBs, OCPs and OPPs
- Table B6 – PFAS
- Table B7 – asbestos
- Table B8– VOCs
- Table B9– cyanide, nutrients and physio-chemical parameters

All soil analytical results were less than the adopted HILs or HSLs except for ACM-TP05_0.1-0.2 where lead (4770 mg/kg) exceeded HIL D criteria (1500 mg/kg). ACM-TP05 is located at AEC17 (adjacent to Pacific Highway and railway).

Asbestos was detected in on fragment of asbestos (ACM-2) sampled from AEC 20. Asbestos was not detected in any soil sample analysed.

Soil analytical results and TCLP are compared to the NSW EPA (2014) waste classification criteria in **Table B10** and **Table B11** respectively in **Appendix B.** All results were than either less than CT1 or SCC1/TCLP1 (general solid waste) with the exception of samples listed in **Table 19**.

Soil analytical results were compared to the 'absolute maximum concentration' (Column 3) in the Excavated natural material order 2014 (ENM order). The criteria were exceeded for arsenic, cadmium, copper, lead, nickel, zinc, TPH C10-C36, benzo(a)pyrene and foreign materials. The summary of exceedances are in **Table 20**. The results have not been compared to the average ENM criteria as there are insufficient sampling densities against. Laboratory reports for all soil analytical results are included in **Appendix H**.

Table 19 Summary of results exceeding general solid waste classification criteria

AEC	Sample	Analyte	Results		Criteria exceeded	Classification
			Soil (mg/kg)	TCLP (mg/L)		
AEC1	BH02_1.3-1.4	Benzo(a)pyrene	6.3	-	CT2	HW*
AEC2,3,4	BH04_0.2-0.3	Benzo(a)pyrene	4	-	CT2	HW*
	BH04A_0.4-0.5	Benzo(a)pyrene	16.2	<0.4	SSC1	RSW
AEC7	ACM-BH05_0.1-0.2	Lead	223	-	CT1	RSW
		Benzo(a)pyrene	11.1	<0.5	SCC1	
		Sum of PAHs	224	n/a	SCC1	
AEC11	BH26_1.1-1.2	Benzo(a)pyrene	4.1	-	CT2	HW*
	BH26B_0.4-0.5	Benzo(a)pyrene	1.3	-	CT1	RSW*
AEC17	ACM-TP03_0.5-0.6	Lead	84-104	-	CT1	RSW*
	ACM-TP05_0.1-0.2	Arsenic	200	-	CT1	RSW
		Lead	4770	-	SCC1	
AEC24	A-BH16B_0.5-0.6	Lead	112	-	CT1	RSW*

Note: *No TCLP results for the sample (further sampling and analysis including statistical analysis may reduce classification)

Table 20 ENM order exceedances

Analyte	Criteria - Absolute Maximum Concentration (mg/kg)	No. of samples exceeding criteria	Maximum concentration detected (mg/kg)
Arsenic	40	4	200
Cadmium	1	2	3

Analyte	Criteria - Absolute Maximum Concentration (mg/kg)	No. of samples exceeding criteria	Maximum concentration detected (mg/kg)
Copper	200	1	355
Lead	100	13	4770
Nickel	60	4	104
Zinc	300	12	2000
TPH C10-C36	500	3	2100
Benzo(a)pyrene	1	22	16.2
Sum of PAHs	40	6	297
Foreign material analysis	0.1%	5	0.78

9.2 Coal tar analysis

Coal tar analysis results of asphalt samples are summarised in **Table B12** in **Appendix B.** Coal tar was reported as absent in all samples. Laboratory reports are included in **Appendix H**.

9.3 Groundwater

9.3.1 Gauging results

Groundwater gauging results for each groundwater monitoring is presented in **Table B13** in **Appendix B**. Standing water levels (SWL) ranged between 0.310 m bTOC (GW35) and 10.020 m bTOC (R-BH23) and 0.427 m AHD (R-CPT08) and 8.482 m AHD (GW30). Monitoring well GW39 was dry. Non aqueous phase liquid (NAPL) was not measured in any of the groundwater monitoring wells gauged.

Inferred groundwater contours are provided on **Figure 3A** to **Figure 3B** in **Appendix A**. The inferred groundwater flow in the southern section (south of Wyong River) was generally to the northeast towards the Wyong River. On the northern side of the Wyong River the inferred groundwater flow was towards the south of Wyong Station and the north and northeast within the project area north of Wyong Station.

9.3.2 Groundwater quality parameters and observations

Stabilised groundwater quality parameters and observations for each monitoring well sampled is presented in **Table B14** in **Appendix B**. The observations of groundwater quality during sampling were:

- no sheens in purged groundwater from any of the monitoring wells
- low or no turbidity in purged groundwater from monitoring wells except for GW01, GW11, GW29, GW29, GW30, R-BH10, R-BH23 which had moderate turbidity and GW22 which had high turbidity
- groundwater was mostly observed to be clear or yellow with the exception of red-brown in GW22 and GW29, pale brown in R-BH23 and GW11
- a sulfur odour was observed in eight of the 18 monitoring wells sampled.

The summary of the range of groundwater quality parameters is in **Table 21**. Groundwater parameters indicated groundwater ranging conditions ranging from:

- fresh to brackish
- slightly to moderately acidic
- slightly reducing to strongly oxidising groundwater.

Table 21 Summary of groundwater quality parameter field results

Parameter	Minimum	Maximum
Dissolved oxygen (mg/L)	0.01 (GW28)	1.86 (R-BH23
Electrical conductivity (uS/cm)	183 (GW07)	18652 (R-CPT06)
pH	4.53 (GW26)	6.78 (GW30)
Temperature	20.1 (R-CPT08)	25.9 (GW11)
Redox (Eh)	-11.8 (R-CPT06)	403.4 (BH04)

9.3.3 Groundwater analytical results

Groundwater results are presented and screened against the human health based assessment criteria in **Table B15a** in **Appendix B**. All results were less than the adopted human health based assessment criteria with the exception of pH in monitoring well A-BH03 (pH 5.83) which was less than the adopted human health direct contact criteria of pH 6.5.

It is noted that the laboratory LOR for PAH compound benzo(a)pyrene and VHCs vinyl chloride and bromoethane were higher than the adopted human health direct contact criteria. With the exception of a detection of phenanthrene at 1.3 µg/L (LOR 1 µg/L) no other PAH compounds were detected and no VHC was detected above the LOR.

Groundwater results are presented and screened against the ecological based assessment criteria in **Table B15b** in **Appendix B**. Results exceeding the adopted ecological screening criteria were:

- heavy metals cadmium, chromium, copper, nickel and zinc exceeded the ANZG (2018) 95% protection levels for marine and/or freshwater
- PFOS exceeded the HEPA (2020) 99% protection levels for marine and freshwater.

The exceedances of ecological screening criteria Table 22 and shown on **Figure F4A to 4C** in **Appendix A**.

Table 22 Summary of groundwater results exceeding ecological screening criteria

Analyte	Units	Screening criteria - ANZG 95% level of species protection		Concentration Range		Locations with exceedances
		Freshwater	Marine	Min.	Max.	
Cadmium	mg/L	0.0002	0.0055	<0.0001	0.0003	A-BH06 (GW42), BH10 and BH29
Chromium	mg/L	0.001	0.0044	<0.0001	0.002	A-BH02, R-BH37 (GW11) and A-BH03
Copper	mg/L	0.0014	0.0013	<0.0001	0.089	BH01 (GW01), A-BH06 (GW22), BH10, BH26 (GW26), BH29 (GW29), BH35 (GW35), BH42 (GW42) and R-BH23
Nickel	mg/L	0.011	0.07	0.001	0.127	A-BH06 (GW22), A-BH17, BH35 (GW35), R-BH37 (GW11), BH28 (GW28) and BH29 (GW29
Zinc	mg/L	0.008	0.008	<0.001	0.176	BH01 (GW01), BH42 (GW42), A-BH06 (GW22), BH35 (GW35), BH10, BH26 (GW26), BH28 (GW28) and BH29 (GW29)

Analyte	Units	Screening criteria - ANZG 95% level of species protection		Concentration Range		Locations with exceedances
		Freshwater	Marine	Min.	Max.	
PFOS	µg/L	0.00023 (99%)*		<0.01	0.02	BH30 (GW30) and BH26 (GW26)

Notes:* HEPA (2020) 99% level of species protection for marine and freshwater.

9.4 Soil vapour

9.4.1 Leak test

Soil vapour monitoring bores SV1(S/D) and SV3 were not sampled due to water in the lines from groundwater inundating the screened interval. SV2 and SV4 passed leak detection tests. Leak test records for SV2 and SV4 are included in **Appendix I**.

9.4.2 Field screening

The soil vapour field readings for SV2 and SV4 are summarised in **Table 23** and field sheets are included in **Appendix I**.

Table 23 Soil vapour field results

Well	VOCs	Stabilised			Post Sampling			
		O_2	CO_2	CH_4	O_2	CO_2	CH_4	VOCs
SV2	2.2 ppm	0.6%	12.3%	37.2%	0.9%	11.5%	34.6%	1.4 ppm
SV4	6.8 ppm	0.4%	17.8%	1.3%	0.0%	17.9%	1.4%	6 ppm

9.4.3 Soil vapour analytical results

All soil vapour analytical results are presented and screened against the assessment criteria in **Table B16** in **Appendix B**. All results were less adopted assessment criteria. Laboratory reports are included in **Appendix H**.

10.0 Discussion

10.1 Nature and extent of contamination

This investigation identified one lead hotspot (>250% of criteria) in shallow soil within the railway corridor south of Wyong Station (ACM-TP05_0.1-0.2). All other soil samples met the adopted human health based assessment criteria in this investigation.

The SMEC (2016) investigation detected concentrations of carcinogenic PAHs (benzo(a)pyrene TEQ) exceeding the adopted human health based assessment criteria in soil directly beneath the road pavement in the Pacific Highway adjacent to the Shell service station and Aldi in the northern part of the project area (BHE20 and BHE22). The PB (2014) investigation identified coal tar pavements in the same area. Boreholes drilled as part of this investigation surrounding the BHE20 and BHE22 (BH26 to BH28) reported concentrations of benzo(a)pyrene TEQ below the adopted assessment criteria. The results suggest the contamination is not wide spread and likely sourced from road pavements.

The estimated lateral extent of the lead hotspot and carcinogenic PAHs impacts to be delineated during construction is shown on **Figure FB** in **Appendix A**. The depth of impact for the lead hotspot is potentially up to 1 mbgl (extent of fill) and 0.2 mbgl for the carcinogenic PAHs impacted area. It I noted that delineation of the lead hotspot to the east is restricted by the active rail corridor and remedial works would be restricted the construction footprint.

Previous investigations identified potential coal tar asphalts (based on visual and olfactory observations) in the following sections of the Pacific Highway within the project area:

- north of Anzac Avenue
- about 50 m south of the Church Street intersection
- between Johnson Road and Bluegum Drive.

Coal tar testing of asphalt samples completed across the project area did not identify the presence of coal tar in the samples tested in this investigation.

Based on the investigation results completed to date, localised soil remediation or management would be required of the lead hotspot within the rail corridor and area impacted with carcinogenic PAHs at the Pacific Highway just south of North Road intersection. The impacted soils could be excavated and disposed off-site to a licensed waste facility, with resultant excavations validated. Where the impacted soils are to be excavated as part of bulk excavation and disposed off-site to an appropriately licensed waste facility, a remediation action plan (RAP) would not be required. Where the soils surrounding the impacted area are proposed to be re-used within the project area, a RAP would and validation report would be required to demonstrate unsuitable soils have been delineated and removed.

Asbestos fragments were identified on the soil surface in South Tacoma Road. Asbestos was not detected in the soil samples analysed from across the project area. Based on the presence of underground service conduits and service pits made of ACM within the project area (known locations shown on **Figure 2B** to **2E** in **Appendix A**) and some areas of fill with inclusions of demolition wastes, it is likely asbestos in soil would be encountered during future excavation works in parts of the project area. Areas of fill containing inclusions of demolition materials (i.e. brick and ceramic fragments) were located in the project area at:

- near intersection of Bluegum Close and McPherson Road (ACM-TP17)
- the reserve between the River Road and Pacific Highway (R-TP03)
- the road reserve on the northern side of Cutler Drive (R-TP11)
- the west side of the Howarth Street bridge (R-TP05)

Groundwater was encountered at the shallowest depth of 0.3 mbgl, but was typically encountered at depths of between 1 to 3 mbgl. Shallow groundwater in low lying areas of project area could potentially be encountered during earthworks. All groundwater results were less than the adopted human-health based assessment criteria. There were exceedances of the ecological based criteria for heavy metals (cadmium, chromium, copper, nickel and zinc) and PFOS. The heavy metal exceedances were spread

across the project area. The PFOS exceedances were the closest monitoring wells hydraulically down-gradient of the fire station. Groundwater extracted during dewatering activities during construction would require testing and assessment against discharge criteria or be disposed of at an appropriately liquid waste facility.

Soil vapour results were less than the adopted assessment criteria in the two wells sampled. It is noted that SV1 and SV4 could not be sampled due to groundwater being above the depth of the probe. There was no TRH or VOC contamination identified in the soil or groundwater in the boreholes and monitoring at these two locations. Based on this the risk of vapour intrusion within the project area is low. It is noted there are two operational service stations present so there is still an ongoing risk for future spills that could potentially contaminant the adjacent project area.

10.2 Waste classification

Based on the results of the investigation the majority of the soils sampled within the project area are likely to be classified as general solid waste (GSW) with some areas of special waste (asbestos), restricted solid waste (RSW) and potentially hazardous waste (HW) in accordance with the NSW EPA (2014) Waste Classification Guidelines: Part 1 Classifying Waste. Soil classified as RSW was identified at:

- BH04A located at southern most end of South Tacoma Road
- ACM-BH05 located within the railway carpark on the east side of Wyong Station
- ACM-TP05 located within the railway corridor south of Wyong Station

Soil classified as RSW or HW that could potentially be reduced to GSW within further sampling and analysis including TCLP and statistical analysis were identified at:

- BH02 located at southern most end of South Tacoma Road/Pacific Highway
- BH26 located at east side of Howarth Street Bridge
- ACM-TP03 located within the rail corridor south of Wyong Station
- A-BH16A filled area located adjacent to the Pacific Highway at northern end of the project area.

Areas of special waste (asbestos) potentially are present in the following locations:

- within the rail corridor particularly shallow soils, fill, stockpiles
- subsurface ACM conduits and pits and soils surrounding conduits
- fill within the project area, particularly where there is evidence of demolition type waste observed within the fill.

Based on the comparison of the soil results to the ENM order, fill and natural shallow soils within the project area would not meet the ENM order requirements based on the results.

It is noted that PASS occur within alluvial soils on the south side of the Wyong River, sediments within the Wyong River and alluvial soils on the northern side, as reported in the geotechnical investigation report (AECOM, 2024a) documented in the ASSMP (AECOM, 2024b). PASS that is excavated and requires off-site disposal will need to be in accordance with the NSW EPA (2014) Waste Classification Guidelines: Part 4 Acid Sulfate Soils. PASS does not meet the ENM order requirements, but can be reused within the project area following treatment in accordance with the ASSMP.

Excavated asphalt free from coal tar and asbestos may be either reused under the reclaimed asphalt pavement exemption 2014 under the Protection of the Environment and Operations (POEO) (Waste) Regulation 2014. Coal tar impacted asphalt are to be disposed as GSW (non-putrescible) to an appropriately licensed waste facility.

10.3 Updated conceptual site model

The preliminary CSM developed as part of the SAQPs (AECOM 2023a/b), has been revised based on the DSI results, including revising the risk ranking. The updated CSM is in Table 24 below and updated moderate risk AECs are shown on **Figure F5A** to **F5C** in **Appendix A.**

Table 24 Updated CSM

AEC	Potential contamination sources	Typical Associated CoPC	Potentially complete pathway	Revised AEC risk ranking
AEC 1: Ampol Service Station,	Underground Petroleum Storage	TRH, BTEXN, PAHs, Lead, Phenols	Not currently but is still an active service station (potential for future leaks)	Low-Moderate
AEC2, 3 & 4: Various industrial warehouses and mechanical workshops adjacent proposed project area	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, Solvents, ACM	No	Low
AEC 5: Auction house. Directly in footprint of project area	Storage of motor vehicles	TRH, BTEXN, PAHs, Metals, Phenols, Solvents, ACM	No	Low
AEC6: Electrical sub-station adjacent to the project area	Electrical transformers	Metals, Polychlorinated Biphenyls (PCB)	No	Low
AEC7: Wyong Train station, not directly impacted by development	Unregulated Fill material	ACM, TRH, BTEXN, PAH, Phenols, Pesticides, PCB, Metals	No	Low
AEC8: Recreational Building	Building materials	ACM, Lead (Paint)	No	Low
AEC9: Empty building lot in footprint of development. Building demolished 2020	Building materials	ACM, Lead (Paint)	No	Low
AEC10: Water Pumping station	Water processing	Aluminium, Arsenic, Cadmium, Chromium, Cobalt, Lead, Nickel, Lime, Zinc and Fluoride	No	Low
AEC11: Shell service station directly adjacent development. Associated Carwash. Nearby Fire Station.	Underground petroleum storage Historical use/storage of Aqueous Film Forming Foam (AFFF)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, PFAS, asbestos	Not currently but still an active service station (potential for future leaks)	Low-Moderate

AEC	Potential contamination sources	Typical Associated CoPC	Potentially complete pathway	Revised AEC risk ranking
AEC12: Car Repairs / Workshop	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, Solvents, resin, asbestos	No	Low
AEC13: RailCorp holding facility	Former odours identified by PB (2014) in testpit T051 (0.5-1.0 mbgl)	TRH, BTEXN, PAHs, Phenols, Metals, Nitrates and Ammonia	No	Low
AEC14: Used car dealership	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, Chlorinated Hydrocarbons (CHC), Ammonia, PFAS and ACM	No	Low
AEC15: Potential uncontrolled fill on river banks	Potential uncontrolled fill on river banks	TRH, BTEXN, PAH, Phenols, Pesticides, PCB, Metals and ACM	No	Low
AEC16: Former Service Station	Former Service Station (now vacant land) ACM previously identified on surface	TRH, BTEXN, PAHs, Lead, Phenols and ACM	No	Low
AEC17: Area adjacent to Pacific Highway and railway	Unregulated Fill material	ACM, TRH, BTEXN, PAH, Phenols, OC, OP, PCB and Metals	Yes	Moderate
AEC18: Former Dry Cleaners / adjacent former Sheet Metal Workers / former Lubricating Oils	Former Dry Cleaners / former Lubricating Oils / adjacent former Sheet Metal Workers	Volatile Organic Compounds (VOCs), TRH, PAHs, Phenols, Metals and ACM.	No	Low
AEC19: Former Motor Painters and Panel Beaters	Former Service Station	TRH, BTEXN, PAHs, Metals, Phenols, CHCs and ACM	No	Low
AEC20a to AEC20g:Potential ACM pipe	Seven potential ACM pipe locations north of Wyong River requiring removal during construction	ACM	No	Moderate
AEC21: Potential former UPSS (ALDI Site)	Mechanical workshop Potential for Underground Storage Tanks (USTs)	TRH, BTEXN, PAHs, Metals, Phenols, CHCs, Oil and Grease, Solvents, resin, asbestos	No	Low

AEC	Potential contamination sources	Typical Associated CoPC	Potentially complete pathway	Revised AEC risk ranking
AEC22: Former “Fibrous Plaster Manufacturers” and potential former Service Station	Former Fibrous Plaster Manufacturers and potential former Service Station	ACM, TRH, BTEXN, PAH, Metals	No	Low
AEC23: Current Service Station	Current 7-Eleven Service Station	TRH, BTEXN, PAHs, Lead and Phenols	No	Low
AEC24: Fill - Adjacent Pacific Highway Northern End of the project area	Unregulated Fill material	TRH, BTEXN, PAH, Phenols, OC, OP, PCB and Metals	No	Low
AEC25: Coal Tar Pavements	PB (2014) - Areas where coal tar was noted on the pavement core engineering logs include: C058 and C070 (PB, 2014)); and 2037-55, 2037-56, 2760-S3A, 2760-S4B, 2760-N2B, 2760-N2A and 2760-N3A (TfNSW)	PAH, Phenols and Benzo(a)Pyrene (BaP).	Yes	Low- Moderate
AEC26: Potential ACM Pipes	Potential ACM pipes requiring removal during construction located south of the Wyong River	ACM	Yes	Moderate

Notes: *Revised risk ranking from preliminary CSM

11.0 Conclusions

Based on the review of previous investigation data and new soil data obtained during this investigation, soil impacts have found to be limited in extent at three shallow soil sample locations. There was one hotspot of lead (Pb) in the rail corridor and two locations where carcinogenic PAHs exceeded the adopted human health based assessment criteria in the Pacific Highway between Anzac Avenue and North Road.

ACM was not observed the soil subsurface in test pits or boreholes and was not detected in soil samples analysed. There were isolated fragments of ACM observed on the ground surface, with one near the intersection of south Tacoma Road and the Pacific Highway and within the rail corridor. Based on the presence of underground service conduits and service pits made of ACM within the project area and some areas of fill with inclusions of demolition wastes, it is likely asbestos in soil would be encountered during future excavation works in parts of the project area.

Groundwater was encountered at depths ranging between 0.3 mbgl and 10 mbgl. No sheen or NAPL were observed in the groundwater wells sampled. All groundwater and soil vapour results were less than the adopted human health based assessment criteria. Groundwater results exceeded the adopted ecological screening criteria for heavy metals (cadmium, chromium, copper, nickel and zinc) across the project are and PFOS in the wells closest to the fire station. Groundwater extracted during dewatering activities during construction would require testing and assessment against discharge criteria or be disposed of at an appropriately liquid waste facility.

The CSM has been revised based on the results of investigation. All AECs are considered low risk with the exception of the following:

- AEC 1, AEC 11 and AEC23: Operational service stations (low to moderate risk) due to ongoing use (potential for future spills/leaks)
- AEC 17: unregulated fill adjacent to the Pacific Highway and rail corridor which is moderate risk
- AEC 25: coal tar pavements (low to moderate risk) due to potential presence
- AEC 20a to g and 26: ACM pipes (moderate risk)

Localised soil remediation or management would be required during construction at the lead hotspot within the rail corridor and area impacted with carcinogenic PAHs at the Pacific Highway just south of North Road intersection.

Where the impacted soils are to be excavated as part of bulk excavation and disposed off-site to an appropriately licensed waste facility, a remediation action plan (RAP) would not be required. Where the impacted soils are not proposed to be excavated within the construction footprint or re-use of soils is proposed, a RAP and validation report would be required to demonstrate unsuitable soils have been delineated and removed. An asbestos management plan (AMP) would be required to manage removal of asbestos conduits and pits as well as areas where asbestos impacted fill or surface soils are encountered. An unexpected finds protocol (UFP) should also be prepared for construction to manage potential previously unidentified contamination encountered during construction.

Based on the comparison of the soil results to the ENM order, fill and natural shallow soils within the project area would not meet the ENM order requirements based on the results. Comparison of the results to the NSW EPA (2014) *Waste Classification Guidelines – Part 1 Classifying Waste*, identified areas of RSW and HW at several locations across the project area. Further sampling and analysis including TCLP analysis may change the classification. Areas of acid sulfate soils, located mainly within and south of the Wyong River would be classified as potential acid sulfate soils and require disposal in accordance with NSW EPA (2014) *Waste Classification Guidelines – Part 4* Acid Sulfate Soils and treatment and management in accordance with the ASSMP (AECOM, 2024b).

12.0 References

AECOM (2023a) Sampling, Analysis and Quality Plan 1, Wyong Town Centre – Environmental Assessment

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AECOM (2024a) Geotechnical Factual Report, Wyong Town Centre Pacific Highway Upgrade. 20 September 2024.

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Appendix A

Figures

AECOM

N

0 200 400 m

DATE EXPORTED:
12/09/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Railway
- Motorway
- Main Road
- Local road
- Watercourse

Alison Road
Wyong
Wyong River
Church Street
Pacific Highway
Wyong Station
Mardi

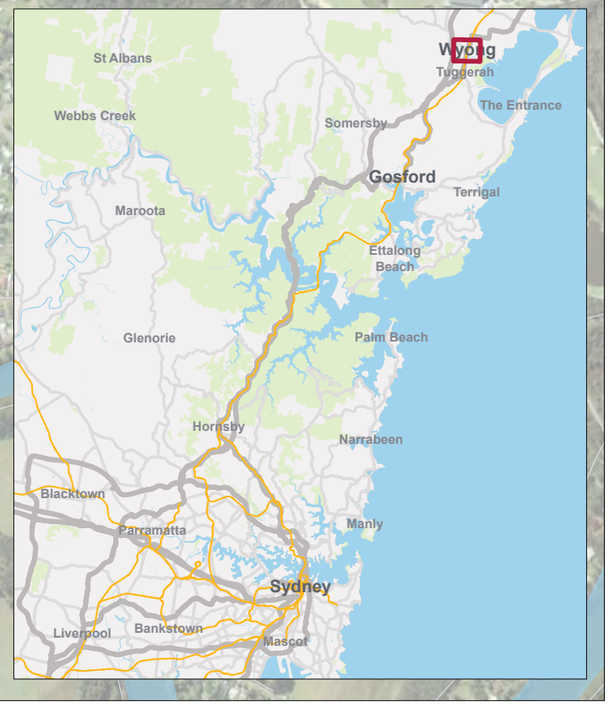


FIGURE 1.A.: SITE LOCATION

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AECOM

N

0 200 400 m

DATE EXPORTED:
12/09/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Railway
- Motorway
- Main Road
- Local road
- Watercourse
- 10m Contour (mAHD)
- 5m Contour (mAHD)

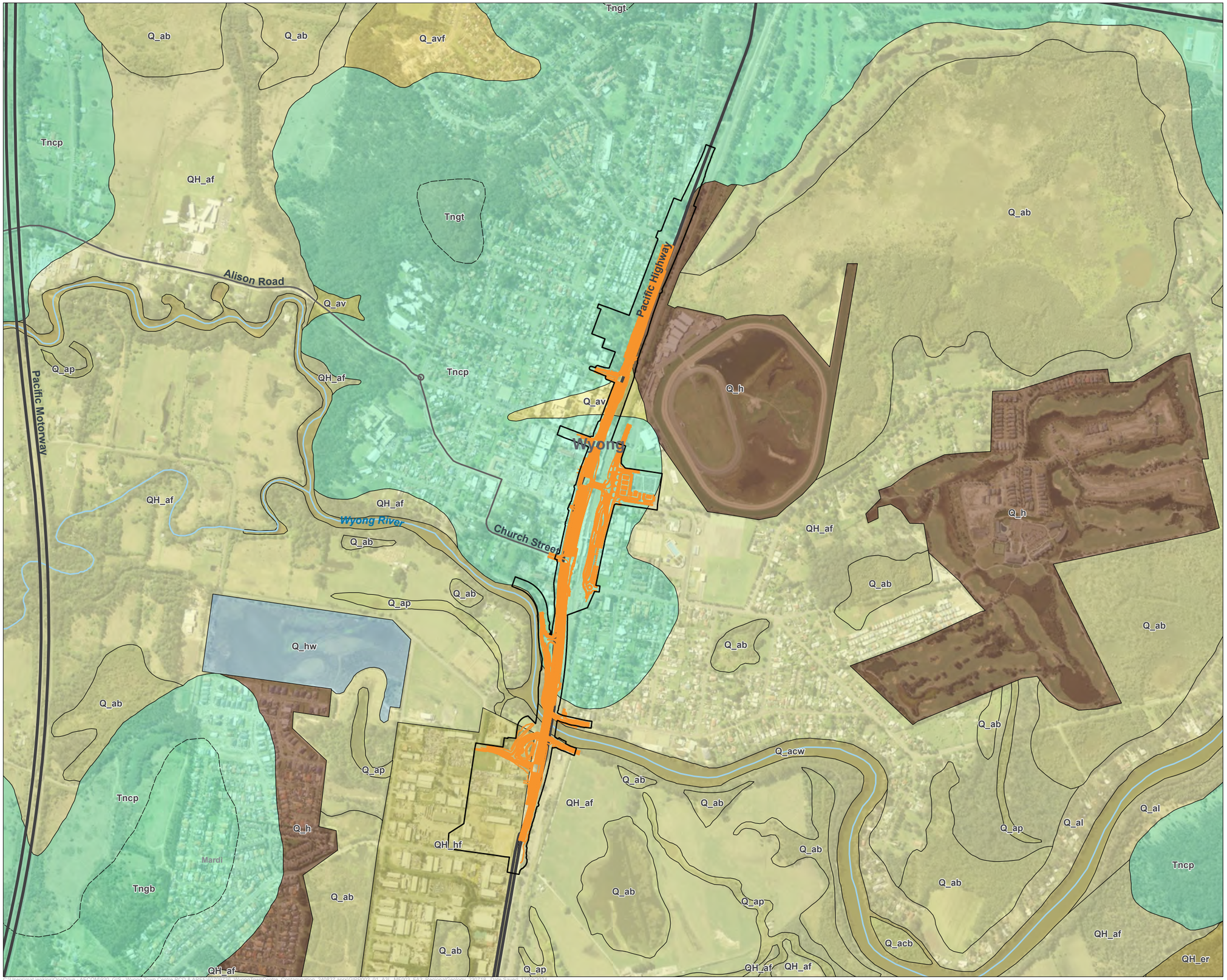
FIGURE 1.B: TOPOGRAPHY AND ELEVATION

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AECOM

N

0 200 400 m

DATE EXPORTED:
12/09/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Motorway
- Main Road
- Watercourses

NSW Seamless Geology

- Geological boundary, position accurate
- Geological boundary, position approximate

Rock Units

Cenozoic Sedimentary Province

- QH_af: Alluvial floodplain deposits
- QH_er: Estuarine shoreline ridge and dune
- QH_hf: Anthropogenic deposits - fill on Quaternary deposits
- Q_ab: Alluvial backswamp deposits
- Q_acb: Alluvial channel deposits - in-channel bar
- Q_acw: Alluvium
- Q_al: Alluvial levee/overbank deposits
- Q_ap: Alluvial palaeochannel deposits
- Q_av: Alluvial valley deposits
- Q_avf: Alluvial fan deposits
- Q_h: Anthropogenic deposits
- Q_hw: Anthropogenic deposits

Permo-Triassic Basins

- Tncp: Patonga Claystone
- Tngb: Burralow Formation
- Tngt: Terrigal Formation

FIGURE 1.C: REGIONAL GEOLOGY

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Source: NSW Seamless Geology, 2023
Department of Customer Services, 2023

AECOM

N

0 200 400 m

DATE EXPORTED:
12/09/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Railway
- Motorway
- Main Road
- Local road
- Watercourse

Soil Landscape

- 9131xx: Disturbed Terrain
- 9131er: Erina
- 9131gk: Gorokan
- 9131ts: Tacoma Swamp
- 9131tg: Tuggerah
- 9131wn: Watagan
- 9131wo: Woodburys Bridge
- 9131wy: Wyong
- 9131ya: Yarramalong

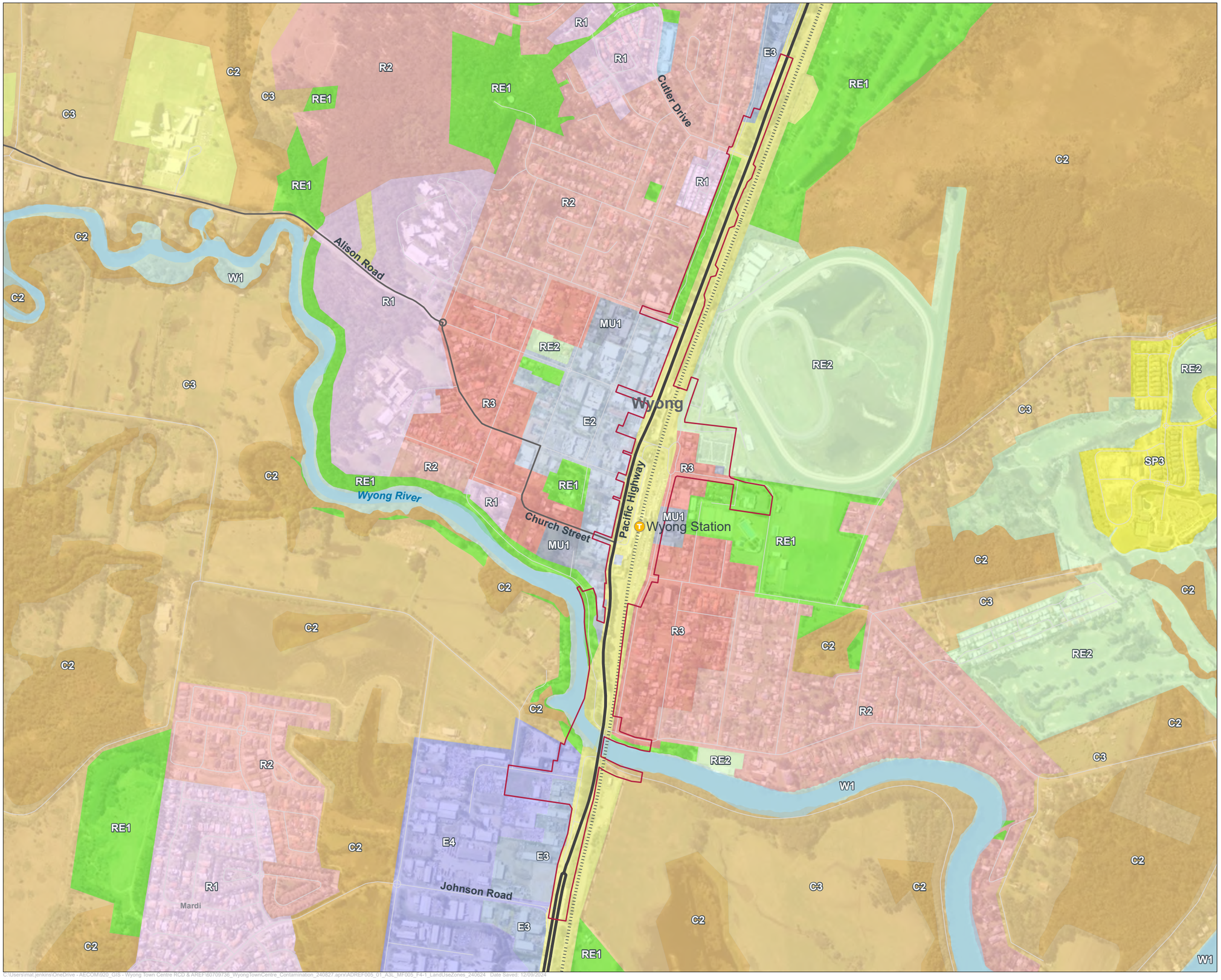
FIGURE 1.D: SOIL LANDSCAPES

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AECOM

N

0 200 400 m

DATE EXPORTED:
12/09/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Watercourse

LEP Land Zoning

- C2 - Environmental Conservation
- C3 - Environmental Management
- E1 - Local Centre
- E2 - Commercial Centre
- E3 - Productivity Support
- E4 - General Industrial
- MU1 - Mixed Use
- R1 - General Residential
- R2 - Low Density Residential
- R3 - Medium Density Residential
- RE1 - Public Recreation
- RE2 - Private Recreation
- SP2 - Infrastructure
- SP3 - Tourist
- W1 - Natural Waterways

FIGURE 1.E:
LAND USE ZONES

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AECOM

N

0 200 400 m

DATE EXPORTED:
21/10/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Local road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Borehole
- CPT
- Hand Auger
- Pavement Core
- Historical Borehole
- Test Pit

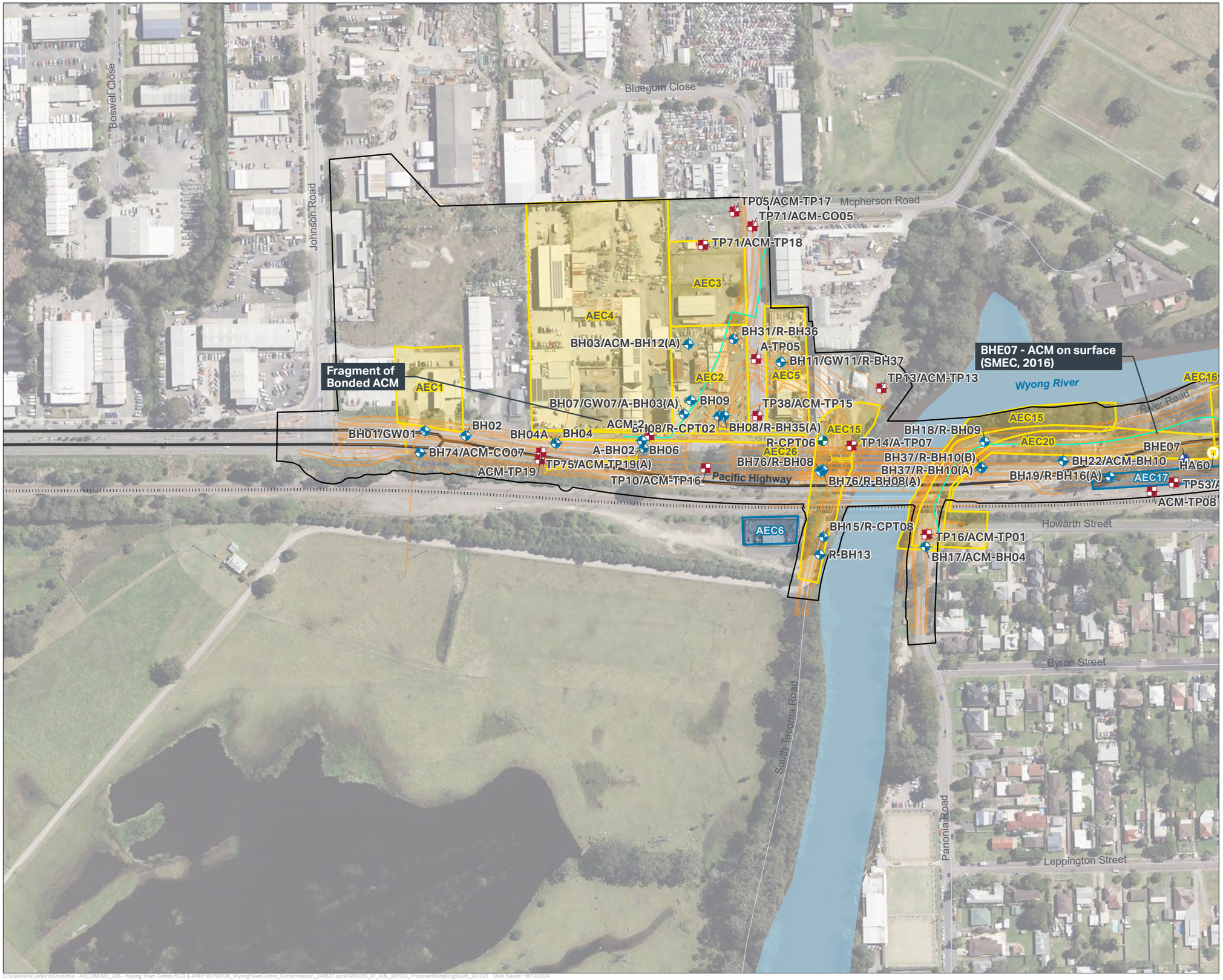
FIGURE 2.A:
SAMPLING LOCATIONS - OVERVIEW

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AECOM

0 60 120 m

DATE EXPORTED:
21/10/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Local road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Borehole
- CPT
- Hand Auger
- Historical Borehole
- Test Pit

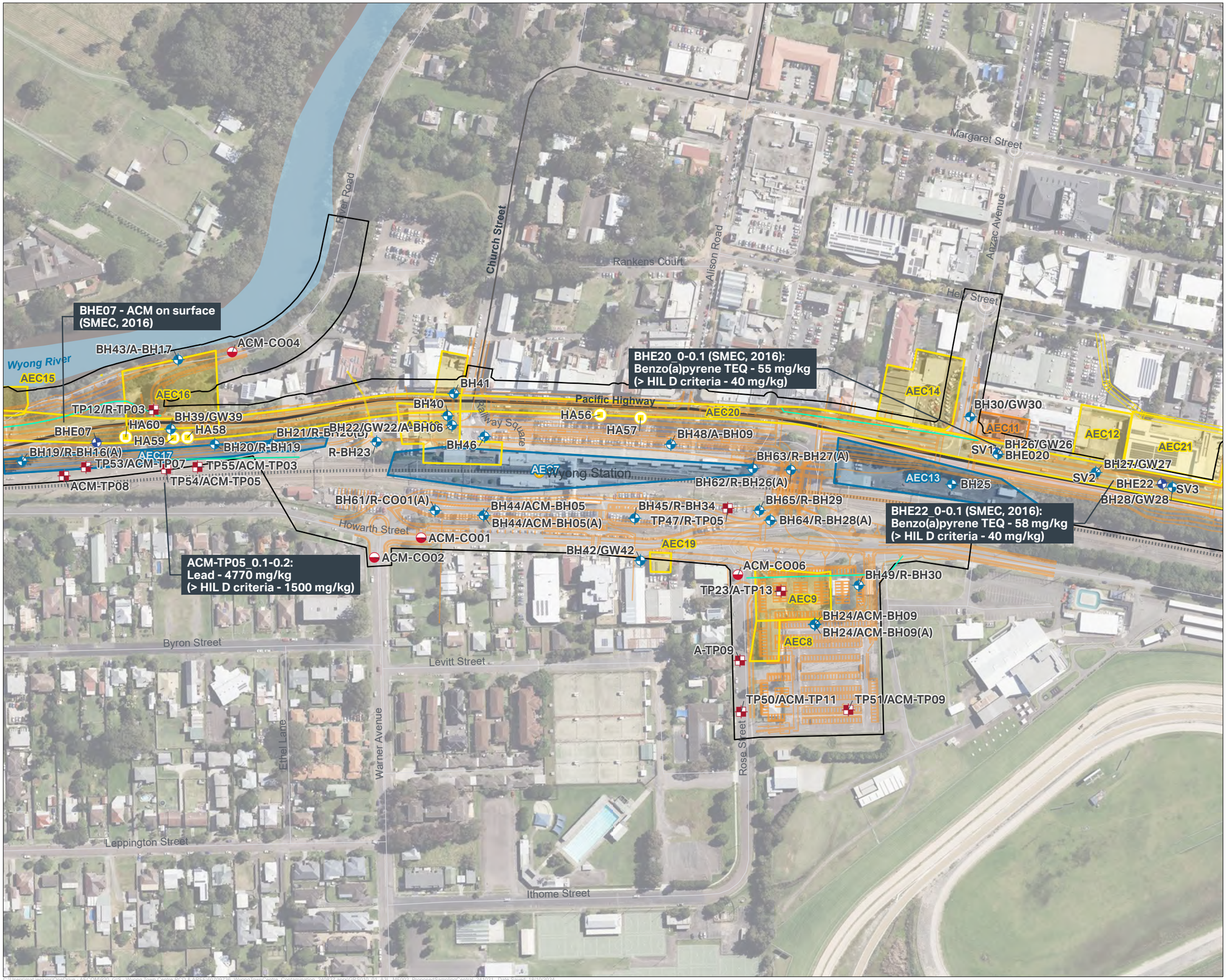
FIGURE 2.B:
SAMPLING LOCATIONS - SOUTH

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AECOM

0 60 120 m

DATE EXPORTED:
21/10/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Local road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Borehole
- Hand Auger
- Pavement Core
- Historical Borehole
- Test Pit

FIGURE 2.C:
SAMPLING LOCATIONS - CENTRAL

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AECOM

0 60 120 m

DATE EXPORTED:
21/10/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Local road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Borehole
- Pavement Core
- Historical Borehole
- Test Pit

FIGURE 2.D:
SAMPLING LOCATIONS - NORTH

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AECOM

0 10 20 m

DATE EXPORTED:
21/10/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Local road
- Pacific Highway Upgrade

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Borehole
- Historical Borehole

Anzac Avenue
North Road
Pacific Highway

AEC11
AEC12
AEC13
AEC20
AEC21

BH30/GW30
BH25
BHE020
SV1
BH26/GW26
BH27/GW27
SV2
BHE22
BH28/GW28
SV3
SV4
BH29/GW29

BHE20_0-0.1 (SMEC, 2016):
Benzo(a)pyrene TEQ - 55 mg/kg
(> HIL D criteria - 40 mg/kg)

BHE22_0-0.1 (SMEC, 2016):
Benzo(a)pyrene TEQ - 58 mg/kg
(> HIL D criteria - 40 mg/kg)

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FIGURE 2.E:
SAMPLING LOCATIONS - CENTRAL

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AECOM

0 40 80 m

DATE EXPORTED:
7/11/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Motorway
- Groundwater Elevation Contour (m AHD)

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Monitoring Well

FIGURE 3A: GROUNDWATER CONTOURS LOCATIONS - SOUTH

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AECOM

0 30 60 m

DATE EXPORTED:
30/08/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Local road

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Monitoring Well

Wyong River
River Road
Pacific Highway
Howarth Street
Byron Street
Rankens Court
Church Street
Railway Square
Wyong Station
Levitt Street
Ethel Lane
Warner Avenue
AEC15
AEC16
AEC17
AEC18
AEC19
AEC20
AEC7
A-BH17 (0.619)
BH10 (0.923)
GW39 (-)
R-BH23 (1.893)
GW22 (6.259)
AEC19
GW42 (5.964)
6
2
2.5
3
3.5
4
4.5
5
5.5
1.5
1

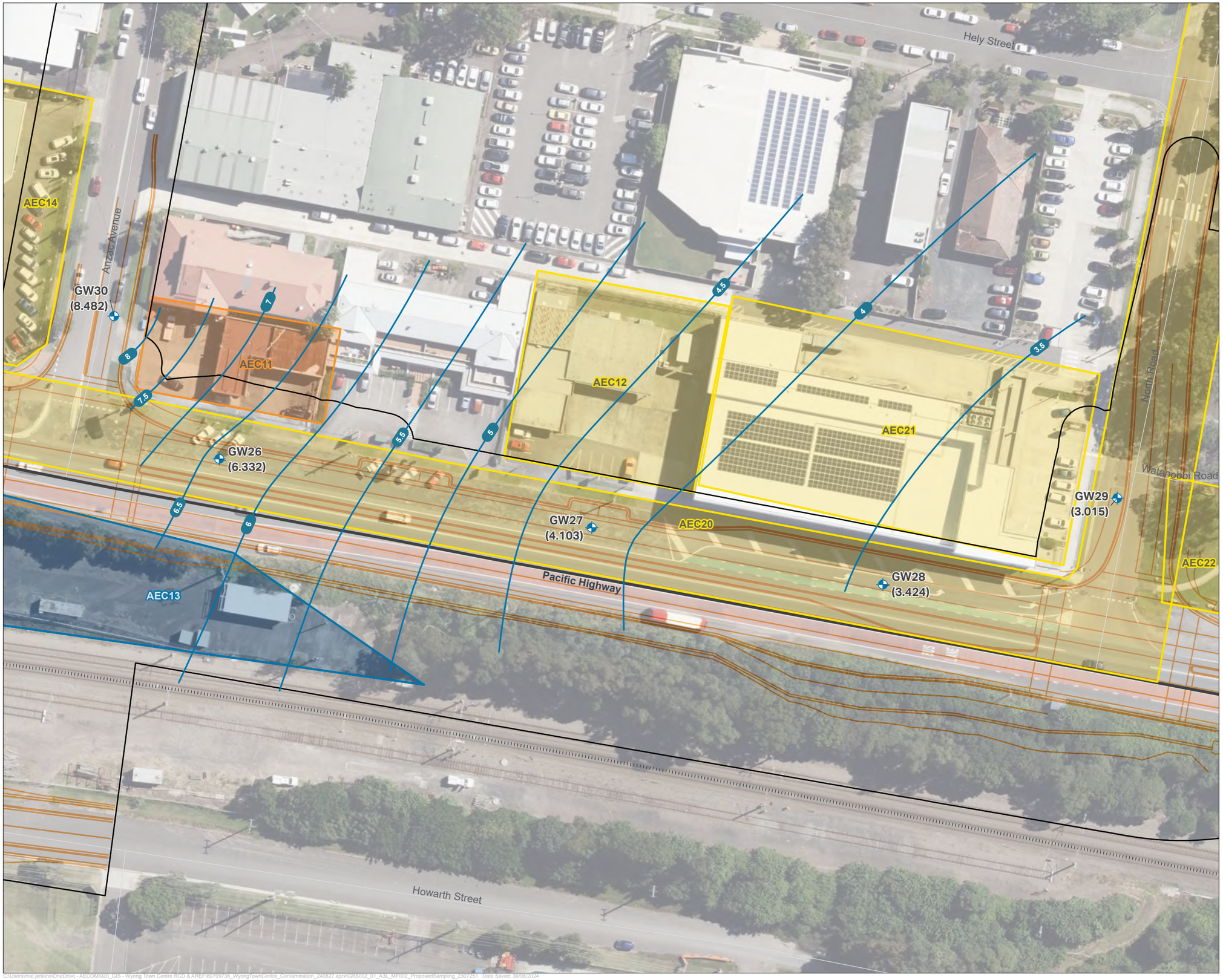
FIGURE 3B: GROUNDWATER CONTOURS LOCATIONS - CENTRAL

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Department of Customer Services, 2023



AECOM

m
0 10 20

DATE EXPORTED:
30/08/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Local road

AEC Risk Rating

- High
- Moderate
- Low

Sample Location

- Monitoring Well

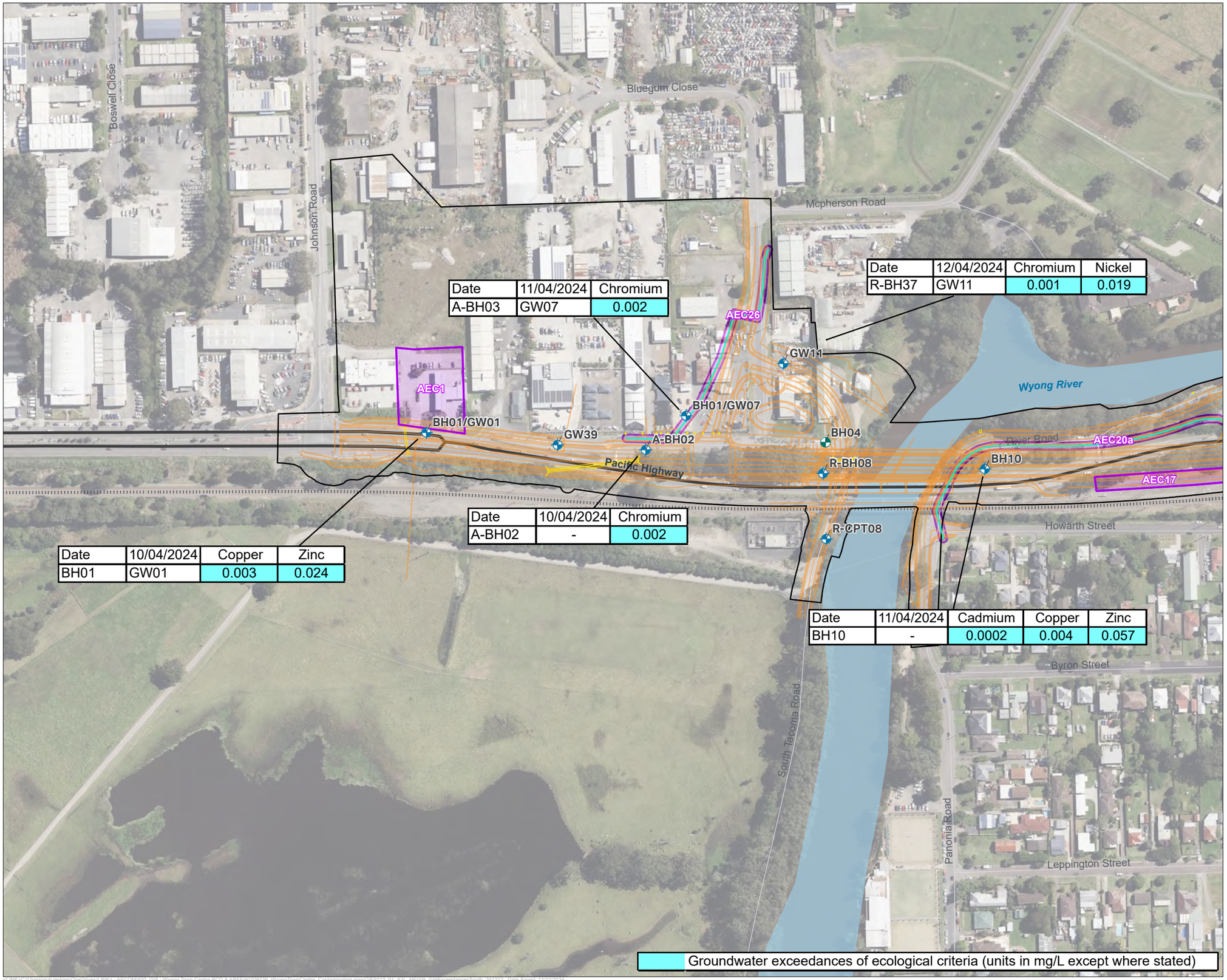
FIGURE 3C: GROUNDWATER CONTOURS LOCATIONS - NORTH

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Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



AECOM

0 60 120 m

DATE EXPORTED:
13/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Motorway
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- Moderate

Sample Location

- Monitoring Well

FIGURE 4A: GROUNDWATER EXCEEDANCES SOUTH

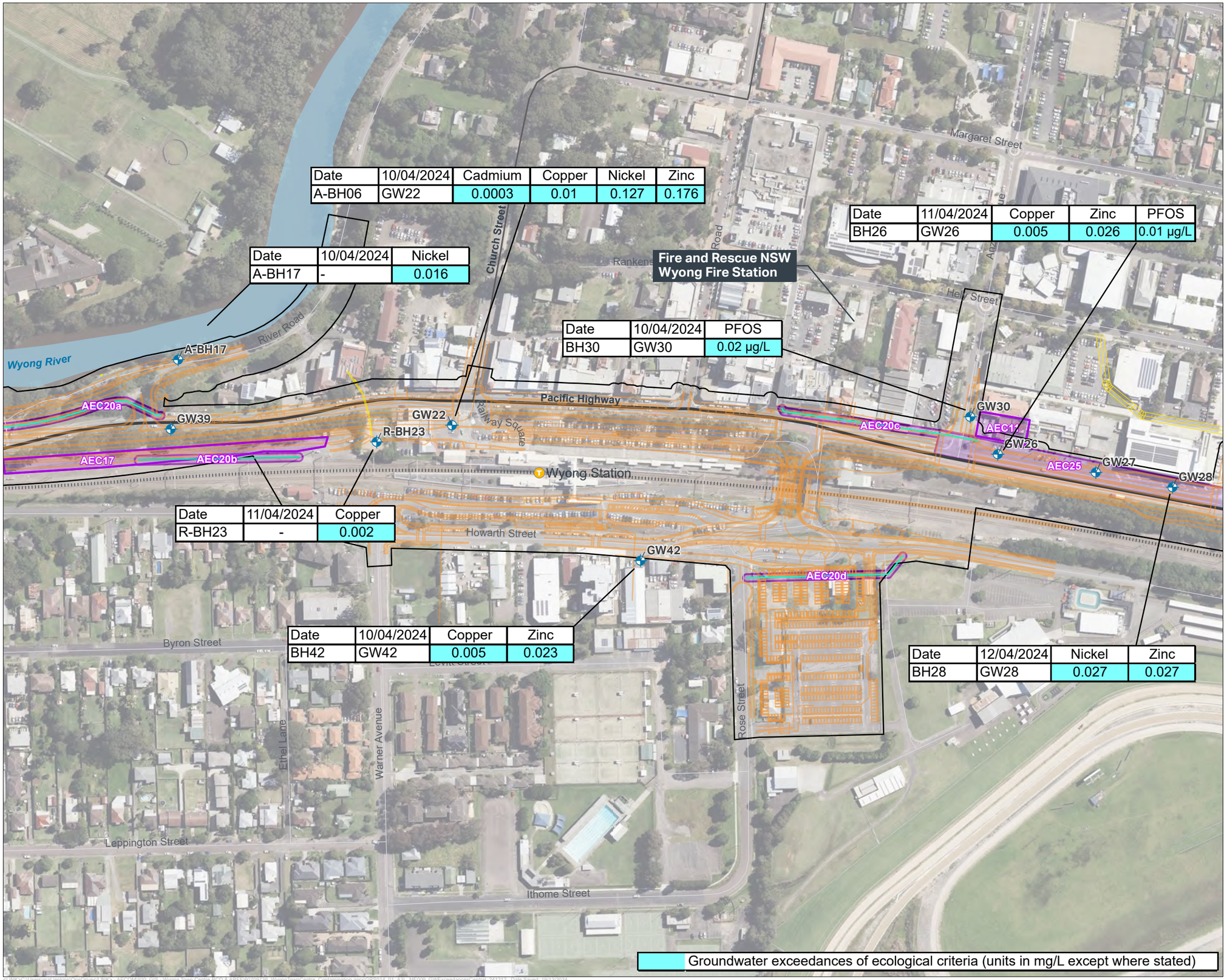
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AECOM

0 60 120 m

DATE EXPORTED:
19/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Motorway
- Main Road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- Moderate

Sample Location

- Monitoring Well

FIGURE 4B: GROUNDWATER EXCEEDANCES CENTRAL

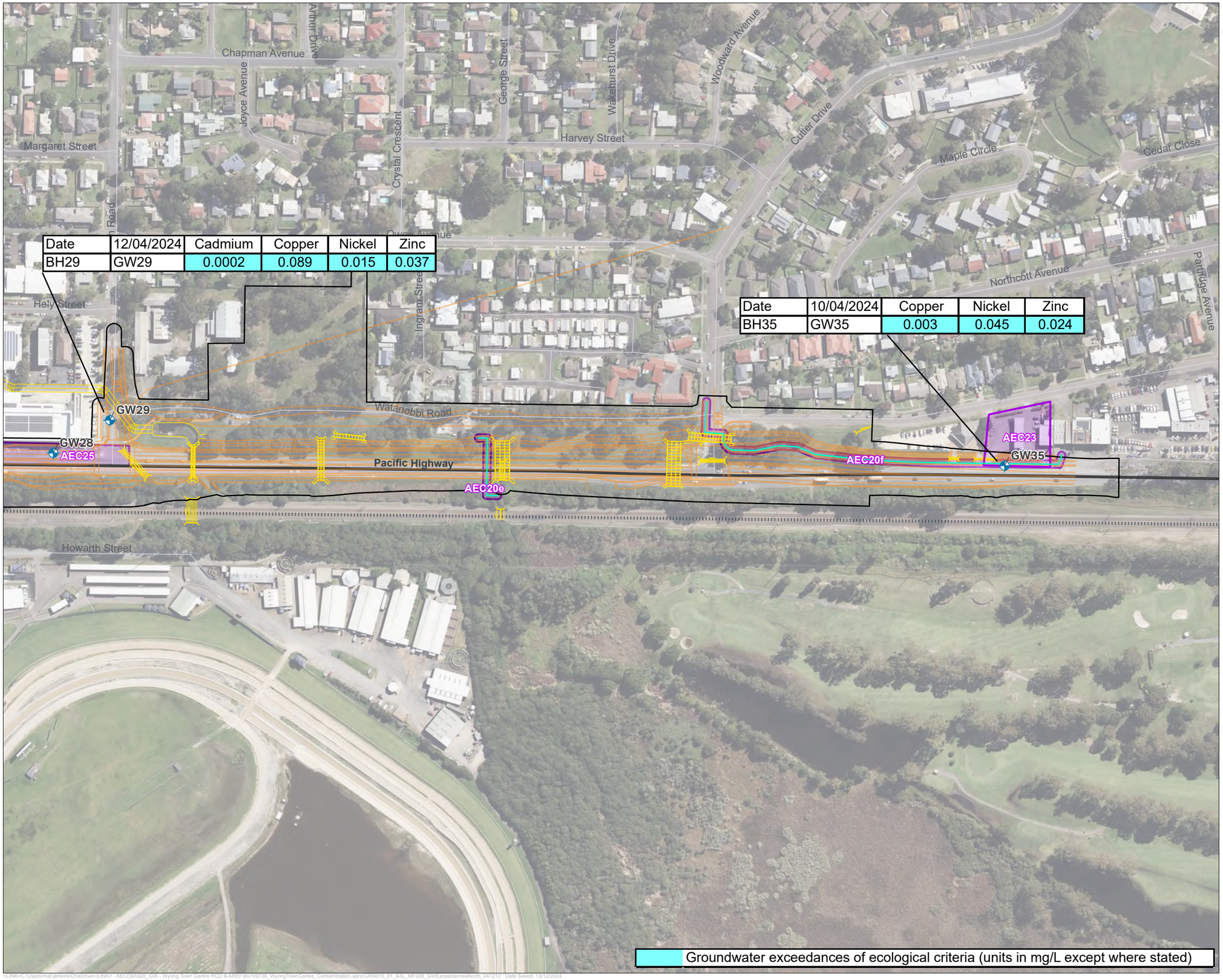
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AECOM

0 60 120 m

DATE EXPORTED:
13/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Motorway
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction

AEC Risk Rating

- Moderate

Sample Location

- Monitoring Well

FIGURE F5C: UPDATED AECS AND AREAS OF SOIL IMPACTS - NORTH

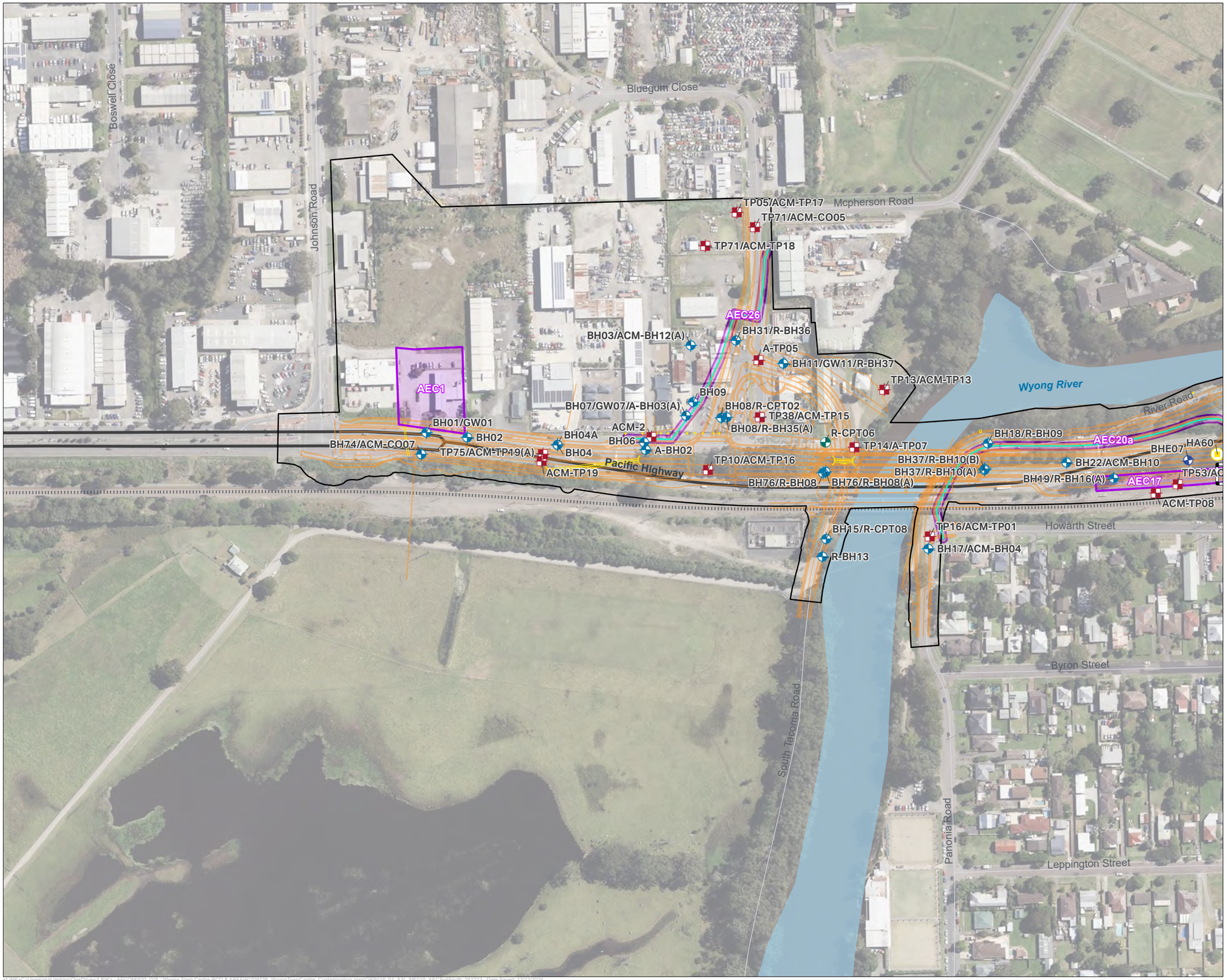
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AECOM

0 60 120 m

DATE EXPORTED:
13/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Motorway
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction
- Estimated Extent of Soil Impacts

AEC Risk Rating

- Moderate

Sample Location

- Borehole
- CPT
- Hand Auger
- Historical Borehole
- Test Pit

FIGURE F5A:
UPDATED AECS AND AREAS OF SOIL IMPACTS - SOUTH

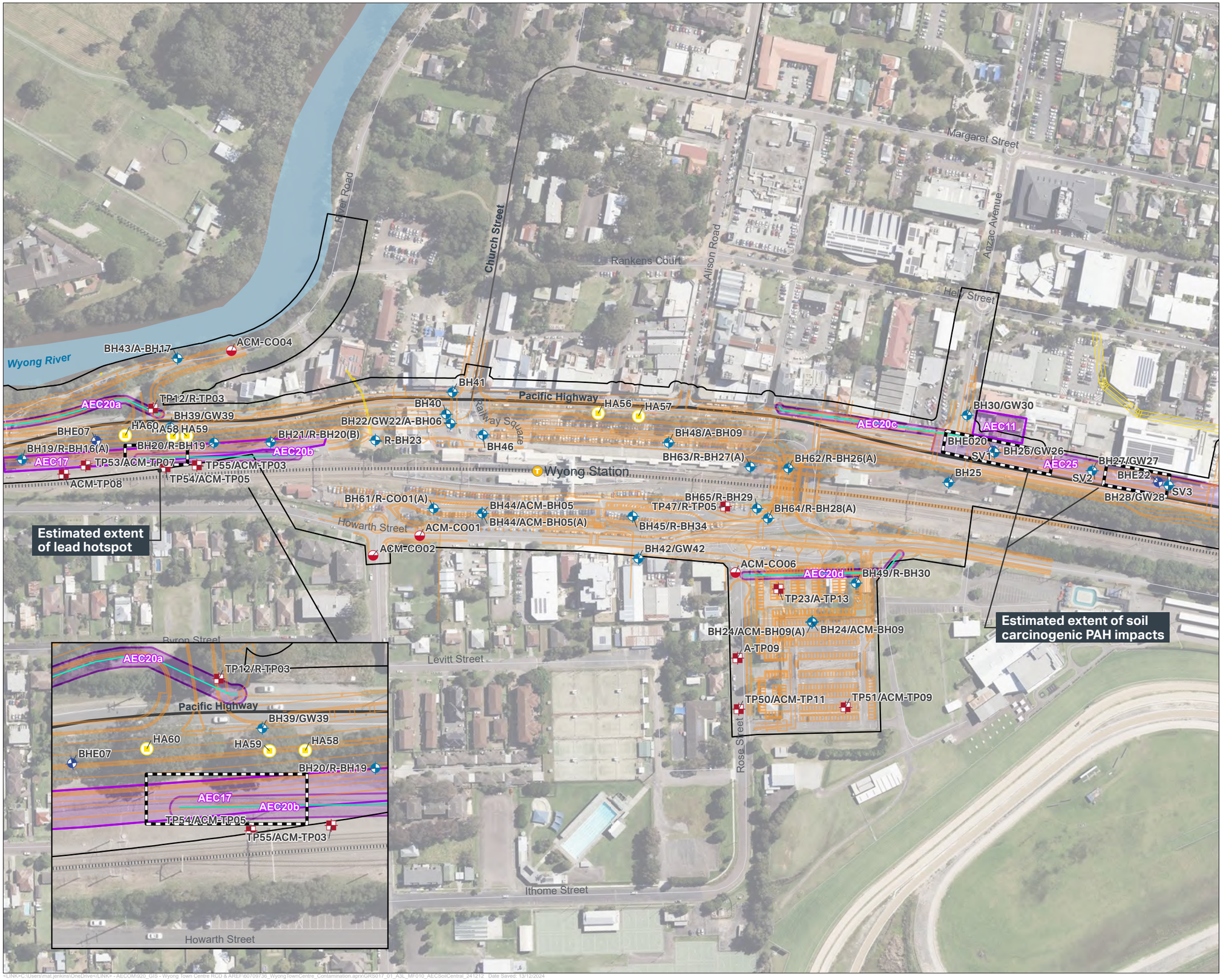
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AECOM

0 60 120 m

DATE EXPORTED:
13/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Main Road
- Motorway
- Main Road
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction
- Estimated Extent of Soil Impacts

AEC Risk Rating

- Moderate

Sample Location

- Borehole
- Hand Auger
- Pavement Core
- Historical Borehole
- Test Pit

FIGURE F5B:
UPDATED AECS AND AREAS OF SOIL IMPACTS - CENTRAL

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AECOM

0 60 120 m

DATE EXPORTED:
13/12/2024

CREATED BY:
MAT.JENKINS

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Railway
- Motorway
- Motorway
- Pacific Highway Upgrade
- Known ACM underground service pipes/conduits requiring removal for construction
- Estimated Extent of Soil Impacts

AEC Risk Rating

- Moderate

Sample Location

- Borehole
- Pavement Core
- Historical Borehole
- Test Pit

FIGURE F5C: UPDATED AECS AND AREAS OF SOIL IMPACTS - NORTH

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Appendix B

Tables

Table B1 - Sampling Locations
Transport for NSW
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

Media	AEC	Location	Proposed Locations in SAQP (AECOM, 2023)	Locations Aligned with Geotech Locations	Soil borehole/ testpit depth (m)	Sampling Date
Soil	AEC 1	BH01/GW01	BH01/GW01	-	6.00	27/03/2024
Soil	AEC 2	BH02	BH02	-	3.00	28/03/2024
Soil	AEC2, 3 & 4	ACM-BH12(A)	BH03	ACM-BH12(A)	0.80	20/12/2023
Soil	AEC2, 3 & 4	BH04	BH04	-	1.50	27/02/2024
Soil	AEC2, 3 & 4	BH04A	BH04A		3.95	8/03/2024
Soil	AEC2, 3 & 4	ACM-TP17	TP05	ACM-TP17	3.00	18/12/2023
Soil	AEC2, 3 & 4	BH06	BH06	-	5.00	8/04/2024
Soil	AEC2, 3 & 4	A-BH03(A)	BH07/GW07	A-BH03(A)	8.50	13/12/2023
Soil	AEC2, 3 & 4	R-BH35(A)	BH08	R-BH35(A)	12.45	21/12/2023
Soil	AEC2, 3 & 4	BH09	BH09	-	3.45	14/12/2023
Soil	AEC2, 3 & 4	ACM-TP16	TP10	ACM-TP16	3.00	8/04/2024
Soil	AEC2, 3 & 4	R-BH36	BH31	R-BH36	6.45	18/12/2023
Soil	AEC2, 3 & 4	ACM-TP18	TP71	ACM-TP18	3.00	20/12/2023
Soil	AEC2, 3 & 4	BH05	-	BH05	4.50	7/04/2024
Soil	AEC2, 3 & 4	A-TP05	-	A-TP05	3.00	26/03/2024
Soil	AEC2, 3 & 4	ACM-CO07	BH74	ACM-CO07	1.50	8/04/2024
Soil	AEC2, 3 & 4	ACM-TP19(A)	TP75	ACM-TP19(A)	1.30	8/04/2024
Soil	AEC 5	R-BH37	BH11/GW11	R-BH37	6.00	22/03/2024
Soil	AEC6	R-BH13A**	BH15**	R-BH13A**	6.00	26/02/2024
Soil	AEC6	R-BH13**	-	R-BH13**	8.45	28/02/2024
Soil	AEC7	ACM-BH05	BH44	ACM-BH05	9.45	7/12/2023
Soil	AEC7	ACM-BH05(A)*	BH44	ACM-BH05(A)*	0.60	19/03/2024
Soil	AEC7	R-BH34	BH45	R-BH34	15.00	4/12/2023
Soil	AEC7	BH46	BH46	-	3.45	15/12/2023
Soil	AEC7	R-TP05	TP47	R-TP05	3.00	13/12/2023
Soil	AEC7	A-BH09	BH48	A-BH09	6.50	5/12/2023
Soil	AEC7	HA56	HA56	-	0.80	18/03/2024
Soil	AEC7	HA57	HA57	-	0.80	18/03/2024
Soil	AEC7	R-BH26(A)	BH62	R-BH26(A)	0.75	8/12/2023
Soil	AEC7	R-BH27(A)	BH63	R-BH27(A)	1.50	8/12/2023
Soil	AEC7	R-BH28(A)	BH64	R-BH28(A)	4.14	19/03/2024
Soil	AEC7	R-BH29	BH65	R-BH29	1.30	7/12/2023
Soil	AEC7	R-CO01(A)	BH61	R-CO01(A)	1.50	19/03/2024
Soil	AEC7	ACM-TP11	TP50	ACM-TP11	2.50	25/03/2024
Soil	AEC7	ACM-TP09	TP51	ACM-TP09	3.00	25/03/2024
Soil	AEC8	A-TP13	TP23	A-TP13	2.00	19/12/2023
Soil	AEC10	ACM-BH09(A)	BH24	ACM-BH09(A)	2.00	19/03/2024
Soil	AEC10	R-BH30	BH49	R-BH30	2.00	12/12/2023
Soil	AEC10	R-TP07	TP34	R-TP07	3.00	21/03/2024
Soil	AEC11	BH26/GW26	BH26/GW26/SV1	-	3.10	24/03/2024
Soil	AEC11	BH30/GW30	BH30/GW30	-	6.00	17/03/2024
Soil	AEC11	BH27/GW27	BH27/GW27	-	0.60	25/03/2024
Soil	AEC12	BH25	BH25	-	3.45	5/12/2023
Soil	AEC15	ACM-TP13	TP13	ACM-TP13	3.00	18/12/2023
Soil	AEC15	A-TP07	TP14	A-TP07	3.00	27/03/2024
Soil	AEC15	R-BH13A	BH15	R-BH13A	1.50	26/02/2024
Soil	AEC15	R-BH13	-	R-BH13	8.45	28/02/2024
Soil	AEC15	ACM-TP01	TP16	ACM-TP01	2.80	26/03/2024
Soil	AEC15	ACM-BH04	BH17	ACM-BH04	6.01	28/02/2024
Soil	AEC15	R-BH09	BH18	R-BH09	1.50	4/03/2024
Soil	AEC15	R-BH08(A)	BH76	R-BH08(A)	16.30	21/03/2024
Soil	AEC15	R-BH10(A)	BH37	R-BH10(A)	4.50	3/04/2024
Soil	AEC16	R-TP03	TP12	R-TP03	2.60	20/03/2024
Soil	AEC16	BH39/GW39	BH39/GW39	-	4.04	18/03/2024
Soil	AEC16	A-BH17	BH43	A-BH17	1.50	4/03/2024
Soil	AEC17	R-BH16(A)	BH19	R-BH16(A)	6.45	22/03/2024
Soil	AEC17	R-BH19	BH20	R-BH19	0.80	28/11/2023
Soil	AEC17	R-BH20(B)	BH21	R-BH20(B)	2.00	30/11/2023
Soil	AEC17	ACM-TP07	TP53	ACM-TP07	-	Not completed
Soil	AEC17	ACM-TP08	-	ACM-TP08	0.65	29/10/2023
Soil	AEC17	ACM-TP05	TP54	ACM-TP05	1.15	28/10/2023
Soil	AEC17	ACM-TP03	TP55	ACM-TP03	2.60	28/10/2023
Soil	AEC17	HA58	HA58	-	0.50	18/03/2024
Soil	AEC17	HA59	HA59	-	1.30	18/03/2024
Soil	AEC17	HA60	HA60	-	1.00	18/03/2024
Soil	AEC18	A-BH06	BH22/GW22	A-BH06	3.95	15/12/2023
Soil	AEC18	BH40	BH40	-	3.45	15/12/2023
Soil	AEC18	BH41	BH41	-	2.77	12/03/2024
Soil	AEC18	BH46	BH46	-	3.45	15/12/2023
Soil	AEC19	BH42/GW42	BH42/GW42	-	6.00	11/03/2024
Soil	AEC20	ACM-1	-	-	-	12/12/2023

Table B1 - Sampling Locations
Transport for NSW
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

Media	AEC	Location	Proposed Locations in SAQP (AECOM, 2023)	Locations Aligned with Geotech Locations	Soil borehole/ testpit depth (m)	Sampling Date
Soil	AEC20	ACM-2	-	-	-	12/12/2023
Soil	AEC21	BH28/GW28	BH28/GW28	-	5.50	26/03/2024
Soil	AEC21	BH29/GW29	BH29/GW29	-	6.00	26/03/2024
Soil	AEC22	BH32	BH32	-	3.00	19/03/2024
Soil	AEC22	BH33(A)	BH33(A)	-	3.00	19/03/2024
Soil	AEC23	BH35/GW35	BH35/GW35	-	4.45	22/03/2024
Soil	AEC24	R-TP11	TP70	R-TP11	3.00	19/03/2024
Soil	AEC24	A-BH15	BH72	A-BH15	6.16	27/11/2023
Soil	AEC24	R-TP07	TP34	R-TP07	3.00	21/03/2024
Soil	AEC24	R-TP06	TP52	R-TP06	3.00	21/03/2024
Soil	AEC24	A-BH13	BH66	A-BH13	6.18	1/12/2023
Soil	AEC24	A-BH14	BH67	A-BH14	6.18	1/12/2023
Soil	AEC24	A-BH16(A)	BH68	A-BH16(A)	6.45	1/12/2023
Soil	AEC24	R-TP12	TP69	R-TP12	3.00	3/04/2024
GW	AEC 1	BH01/GW01	BH01/GW01	-	6.00	10/04/2024
GW	AEC2, 3 & 4	A-BH03(A)	BH07/GW07	A-BH03(A)	6.00	11/04/2024
GW	AEC2, 3 & 4	PB-BH04	-	BH04 (PB-BH04)	-	11/04/2024
GW	AEC2, 3 & 4	A-BH02	-	A-BH02	10.30	10/04/2024
GW	AEC 5	R-BH37	BH11/GW11	R-BH37	6.00	12/04/2024
GW	AEC11	BH26/GW26	BH26/GW26	-	3.10	11/04/2024
GW	AEC11	BH30/GW30	BH30/GW30	-	6.00	10/04/2024
GW	AEC12	BH27/GW27	BH27/GW27	-	3.50	11/04/2024
GW	AEC14	BH26/GW26	BH26/GW26	-	3.10	11/04/2024
GW	AEC14	BH30/GW30	BH30/GW30	-	6.00	10/04/2024
GW	AEC16	A-BH17	-	A-BH17	5.00	10/04/2024
GW	AEC16	BH10	-	BH10	4.50	11/04/2024
GW	AEC16	BH39/GW39	BH39/GW39	-	4.04	Not sampled - dry
GW	AEC18	A-BH06	BH22/GW22	A-BH06	3.95	10/04/2024
GW	AEC18	R-BH23	-	R-BH23	3.15	11/04/2024
GW	AEC19	BH42/GW42	BH42/GW42	-	6.00	10/04/2024
GW	AEC21	BH28/GW28	BH28/GW28	-	5.50	12/04/2024
GW	AEC21	BH29/GW29	BH29/GW29	-	6.00	12/04/2024
GW	AEC23	BH35/GW35	BH35/GW35		4.45	10/04/2024
SV	AEC11	BH26/GW26/ SV1	BH26/GW26/ SV1	-	3.10	Probe flooded
SV	AEC12	BH27/GW27/SV2	BH27/GW27/SV2	-	0.60	23/04/2024
SV	AEC21	BH28/GW28/SV3	BH28/GW28/SV3	-	1.90	Probe flooded
SV	AEC21	BH29/GW29/SV4	BH29/GW29/SV4	-	3.00	23/04/2024
Asphalt	AEC25	R-BH10	-	R-BH10	-	22/03/2024
Asphalt	AEC25	BH02	BH02	-	-	3/04/2024
Asphalt	AEC25	A-BH17		A-BH17	-	4/03/2024
Asphalt	AEC25	ACM-CO01		ACM-CO01	-	22/03/2024
Asphalt	AEC25	ACM-CO02		ACM-CO02	-	22/03/2024
Asphalt	AEC25	ACM-CO04		ACM-CO04	-	22/03/2024
Asphalt	AEC25	A-TP09		A-TP09	-	25/03/2024
Asphalt	AEC25	ACM-TP11		ACM-TP11	-	25/03/2024
Asphalt	AEC25	ACM-CO06		ACM-CO06	-	25/03/2024
Asphalt	AEC25	A-TP05		A-TP05	-	26/03/2024
Asphalt	AEC25	ACM-TP01		ACM-TP01	-	26/03/2024
Asphalt	AEC25	R-CO06		R-CO06	-	2/04/2024
Asphalt	AEC25	R-CO05		R-CO05	-	2/04/2024
Asphalt	AEC25	ACM-TP19		ACM-TP19	-	8/04/2024
Asphalt	AEC25	BH26	BH26		-	4/04/2024
Asphalt	AEC25	BH27	BH27		-	4/04/2024
Asphalt	AEC25	R-BH10(B)	BH37	R-BH10(B)	-	22/03/2024
Asphalt	AEC25	ACM-TP15	TP38	ACM-TP15	-	26/03/2024
Asphalt	AEC25	BH41	BH41	-	-	12/03/2024
Asphalt	AEC25	A-BH17	BH43	A-BH17	-	4/03/2024
Asphalt	AEC25	R-TP05	TP47	R-TP05	-	13/12/2023
Asphalt	AEC25	ACM-TP09	TP51	ACM-TP09	-	13/12/2023
Asphalt	AEC25	R-CO06	BH60	R-CO06	-	2/04/2024
Asphalt	AEC25	R-CO01(A)	BH61	R-CO01(A)	-	2/04/2024
ACM	AEC26		Asbestos pipe	ACM-2	-	12/12/2024

Table B2
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

										Metals												
									Moisture Content	Arsenic	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
									%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR									0.1	2	1	0.4	2	0.5	5	5	0.1	2	2	5	2	5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										3000	500	900	3600	3600	240000	1500	730		6000	10000		400000
AEC	**Location**	**Depth (m)**	**Field_ID**	**SampleCode**	**Sample Date**	**Lab Report**	**Monitoring_Zone**															
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	ES2410231002	27/03/2024	ES2410231	Ampol, Tuggerah		17	12	-	<1	24	-	19	593	<0.1	-	5	-	-	168
AEC1	BH01A	2.8-2.9	BH01A_2.8-2.9	ES2410231004	27/03/2024	ES2410231	Ampol, Tuggerah		18.5	9	-	<1	20	-	14	17	<0.1	-	4	-	-	25
AEC1	BH01A	2.8-2.9	QC100_20240327	ES2410231008	27/03/2024	ES2410231	Ampol, Tuggerah		18.6	<5	-	<1	20	-	13	14	<0.1	-	3	-	-	20
AEC1	BH01A	2.8-2.9	QC200_20240327	S24-Ap0004911	27/03/2024	1083748	Ampol, Tuggerah		-	5.7	-	<0.4	16	-	14	14	<0.1	-	<5	-	-	24
AEC1	BH02	1.3-1.4	BH02_1.3-1.4	ES2410959003	3/04/2024	ES2410959	Ampol, Tuggerah		18.4	<5	-	<1	23	-	11	13	<0.1	-	3	-	-	24
AEC1	BH02	2.8-2.9	BH02_2.8-2.9	ES2410959006	3/04/2024	ES2410959	Ampol, Tuggerah		22.6	<5	-	<1	18	-	15	14	<0.1	-	2	-	-	16
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	ES2343854013	13/12/2023	ES2343854	South Tacoma Road		18.2	5	-	<1	20	-	13	15	<0.1	-	4	-	-	32
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	ES2343854014	13/12/2023	ES2343854	South Tacoma Road		15.4	5	-	<1	16	-	13	13	<0.1	-	4	-	-	27
AEC2,3 & 4	ACM_TP16	0-0.2	ACM_TP16_0.0-0.2	ES2411748001	8/04/2024	ES2411748	Pacific Highway		10.5	14	-	<1	30	-	35	73	<0.1	-	27	-	-	171
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	ES2411748002	8/04/2024	ES2411748	Pacific Highway		16.7	<5	-	<1	12	-	8	10	<0.1	-	3	-	-	16
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	ES2411748003	8/04/2024	ES2411748	Pacific Highway		12	<5	-	<1	7	-	<5	7	<0.1	-	<2	-	-	9
AEC2,3 & 4	ACM_TP19	0.6-0.8	ACM_TP19_0.6-0.8	ES2411748007	8/04/2024	ES2411748	Pacific Highway		12.8	<5	-	<1	33	-	19	11	<0.1	-	20	-	-	18
AEC2,3 & 4	ACM_TP19	0.6-0.8	QC101_20240408	ES2411748014	8/04/2024	ES2411748	Pacific Highway		18.5	<5	-	<1	27	-	14	12	<0.1	-	10	-	-	20
AEC2,3 & 4	ACM_TP19	0.6-0.8	QC201_20240408	S24-Ap0033383	8/04/2024	1087307	Pacific Highway		-	3.4	-	<0.4	38	-	22	8.7	<0.1	-	30	-	-	27
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19A_1.6-1.7	ES2411748009	8/04/2024	ES2411748	Pacific Highway		19.4	<5	-	<1	20	-	14	15	<0.1	-	3	-	-	20
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19A_2.8-2.9	ES2411748010	8/04/2024	ES2411748	Pacific Highway		17.9	5	-	<1	18	-	19	13	<0.1	-	3	-	-	21
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC100_20240408	ES2411748011	8/04/2024	ES2411748	Pacific Highway		10.6	<5	-	<1	34	-	20	9	<0.1	-	25	-	-	20
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC200_20240408	S24-Ap0033382	8/04/2024	1087307	Pacific Highway		-	4.8	-	<0.4	18	-	13	14	<0.1	-	<5	-	-	20
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	ES2344603010	20/12/2023	ES2344603	McPherson Road		11.2	10	-	<1	16	-	<5	10	<0.1	-	3	-	-	9
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	ES2344603011	20/12/2023	ES2344603	McPherson Road		27.2	<5	-	<1	17	-	22	35	<0.1	-	13	-	-	92
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	ES2411530002	7/04/2024	ES2411530	McPherson Road		34.4	<5	-	<1	26	-	29	24	<0.1	-	13	-	-	35
AEC2,3 & 4	BH05	0.8-0.9	QC100_20240407	ES2411530004	7/04/2024	ES2411530	McPherson Road		38.5	6	-	<1	29	-	34	26	<0.1	-	16	-	-	40
AEC2,3 & 4	BH05	0.8-0.9	QC200_20240407	S24-Ap0033366	8/04/2024	1087305	McPherson Road		-	4.4	-	<0.4	33	-	40	33	<0.1	-	17	-	-	43
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	ES2411530003	7/04/2024	ES2411530	McPherson Road		24.4	<5	-	<1	17	-	28	16	<0.1	-	<2	-	-	<5
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	ES2411748015	8/04/2024	ES2411748	Pacific Highway		6.4	<5	-	<1	14	-	46	9	<0.1	-	64	-	-	63
AEC2,3 & 4	ACM-TP15	0.5-1	ACM-TP15_0.5-1.0m	ES2410587003	26/03/2024	ES2410587	McPherson Road		18.6	5	-	<1	20	-	12	12	<0.1	-	5	-	-	23
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	ES2344222005	18/12/2023	ES2344222	McPherson Road		6.5	<5	-	<1	11	-	9	16	<0.1	-	8	-	-	24
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	ES2344222006	18/12/2023	ES2344222	McPherson Road		9.6	<5	-	<1	13	-	13	13	<0.1	-	15	-	-	25
AEC2,3 & 4	ACM-TP17	1.6-1.7	ACM_TP17_1.6-1.7	ES2344222007	18/12/2023	ES2344222	McPherson Road		33.5	<5	-	<1	18	-	20	20	<0.1	-	9	-	-	26
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	ES2344603005	20/12/2023	ES2344603	McPherson Road		9.8	<5	-	<1	13	-	76	13	<0.1	-	17	-	-	53
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	ES2344603007	20/12/2023	ES2344603	McPherson Road		16.3	9	-	<1	14	-	10	18	<0.1	-	6	-	-	23
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	ES2410587008	26/03/2024	ES2410587	McPherson Road		18.9	6	-	<1	21	-	6	20	<0.1	-	7	-	-	14
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	ES2410587009	26/03/2024	ES2410587	McPherson Road		23.5	8	-	<1	28	-	20	19	<0.1	-	6	-	-	36
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	ES2406391010	27/02/2024	ES2406391	South Tacoma Road		8.1	<5	-	<1	20	-	<5	16	<0.1	-	2	-	-	10
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	ES2409354001	8/03/2024	ES2409354	South Tacoma Road		9.2	5	-	<1	17	-	<5	<5	<0.1	-	<2	-	-	<5
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	ES2409354002	8/03/2024	ES2409354	South Tacoma Road		16.1	<5	-	<1	18	-	13	13	<0.1	-	3	-	-	14
AEC2,3 & 4	BH06	0.8-0.9	BH06_0.8-0.9	ES2411530007	8/04/2024	ES2411530	South Tacoma Road		17.7	<5	-	<1	17	-	13	12	<0.1	-	4	-	-	21
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	ES2411530008	8/04/2024	ES2411530	South Tacoma Road		19.2	<5	-	<1	13	-	8	9	<0.1	-	<2	-	-	6
AEC2,3 & 4	BH06	2-2.5	QC100_20240408	ES2411530011	8/04/2024	ES2411530	South Tacoma Road		20.1	<5	-	<1	11	-	8	10	<0.1	-	<2	-	-	8
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	S24-Ap0033365	8/04/2024	1087305	South Tacoma Road		-	11	-	<0.4	18	-	14	16	<0.1	-	<5	-	-	17
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	ES2411530010	8/04/2024	ES2411530	South Tacoma Road		22.4	<5	-	<1	5	-	<5	<5	<0.1	-	2	-	-	9
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	ES2343853007	14/12/2023	ES2343853	McPherson Road		12.2	7	-	<1	14	-	21	49	<0.1	-	5	-	-	77
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	ES2343853009	14/12/2023	ES2343853	McPherson Road		16.3	<5	-	<1	6	-	5	11	<0.1	-	<2	-	-	14
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	ES2344603014	21/12/2023	ES2344603	McPherson Road		17.9	<5	-	<1	17	-	11	18	<0.1	-	7	-	-	32
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	ES2344603016	21/12/2023	ES2344603	McPherson Road		15.7	<5	-	<1	12	-	8	9	<0.1	-	3	-	-	17
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	ES2344222014	18/12/2023	ES2344222	McPherson Road		11.8	7	-	<1	14	-	23	17	<0.1	-	48	-	-	97
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	ES2344222015	17/12/2023	ES2344222	McPherson Road		24	<5	-	<1	27	-	19	19	<0.1	-	11	-	-	34
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	ES2409765010	22/03/2024	ES2409765	McPherson Road		20.6	<5	-	<1	23	-	16	19	<0.1	-	7	-	-	25
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	ES2409765008	22/03/2024	ES2409765	McPherson Road		19.7	<5	-	<1	20	-	18	20	<0.1	-	6	-	-	18
AEC6	R-BH13	1-1.2	R_BH13_1.0-1.2	ES2407037001	28/02/2024	ES2407037	South Tacoma Road		9.4	<5	-	<1	5	-	<5	6	<0.1	-	<2	-	-	6
AEC6	R-BH13	2.8-3	R_BH13_2.8-3.0	ES2407037002	28/02/2024	ES2407037	South Tacoma Road		4.9	<5	-	<1	8	-	8	7	<0.1	-	<2	-	-	6
AEC6	R-BH13A	0.6-0.7	R-BH13A_0.6-0.7	ES2406391005	26/02/2024	ES2406391	South Tacoma Road		4.5	<5	-	<1	5	-	<5	28	0.2	-	<2	-	-	19
AEC6	R-BH13A	1.4-1.5	R-BH13A_1.4-1.5	ES2410544018	25/03/2024	ES2410544	South Tacoma Road		9.5	<5	-	<1	6	-	<5	6	<0.1	-	<2	-	-	<5
AEC6	R-BH13A	1.5-1.6	R-BH13A_1.5-1.6	ES2406391006	26/02/2024	ES2406391	South Tacoma Road		7.2	<5	-	<1	5	-	<5	6	<0.1	-	<2	-	-	7
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	ES2343534011	5/12/2023	ES2343534	Wyong Station Carpark West		15.9	13	-	<1	14	-	29	73	0.1	-	11	-	-	117
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	ES2344617001	7/12/2023	ES2344617	Wyong Station Carpark East		9.2	12	-	<1	11	-	89	54	<0.1	-	12	-	-	123
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	ES2344617002	7/12/2023	ES2344617	Wyong Station Carpark East		25.8	38	-	<1	12	-	57	223	0.2	-	10	-	-	485
AEC7	ACM-BH05(A)	0.2-0.2	ACM_BH05(A)_0.2	ES2409727009	19/03/2024	ES2409727	Wyong Station Carpark East		16	9	-	<1	15	-	30	22	<0.1	-	5	-	-	113
AEC7	ACM-TP11	0.3-0.4	ACM-TP11_0.3-0.4m	ES2410544014	25/03/2024	ES2410544	Rose Street		12.3	6	-	<1	10	-	12	30	<0.1	-	6	-	-	26
AEC7	ACM-TP11	0.5-0.7	ACM-TP11_0.5-0.7m	ES2410544013	25/03/2024	ES2410544	Rose Street		15.9	7	-	<1	10	-	<5	9	<0.1	-	<2	-	-	6
AEC7	HA56	0.3-0.4	HA56_0.3-0.4	ES2413882001	18/03/2024	ES2413882	Wyong Train Station		9.8	<5	-	<1	7	-	10	28	<0.1	-	6	-	-	350
AEC7	HA57	0.3-0.4	HA57_0.3-0.4	ES2413882002	18/03/2024	ES2413882	Wyong Train Station		15.5	<5	-	<1	3	-	<5	9	<0.1	-	<2	-	-	316
AEC7	R_BH28(A)	0.8-0.9	R_BH28(A)_0.8-0.9	ES2409727003	19/03/2024	ES2409727	Rose Street Roundabout		7.5	7	-	<1	12	-	19	32	<0.1	-	4	-	-	26
AEC7	R-BH26A	0.4-0.5	R-BH26A_0.4-0.5	ES2343795001	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge		8.1	<5	-	<1	4	-	<5	8	<0.1	-	<2	-	-	6
AEC7	R-BH26A	0.9-1	R-BH26A_0.9-1.0	ES2343795002	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge		7.4	<5	-	<1	3	-	<5	<5	<0.1	-	<2	-	-	<5
AEC7	R-BH27A	0.7-0.8	R-BH27A_0.7-0.8	ES2343795006	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge		16.1	13	-	<1	16	-	15	45	<0.1	-	7	-	-	214
AEC7	R-BH28	2.95-3	R-BH28_2.95-3.0	ES2413528019	19/03/2024	ES2413528	Rose Street Roundabout		15.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	ES2344223001	7/12/2023	ES2344223	Grass Area Rose Street Overbridge		6.7	9	-	<1	8	-	48	38	<0.1	-	10	-	-	74

Project: 60709736
Checked By: KM
Checked Date:19/09/24

Table B2
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

										Metals												
									Moisture Content	Arsenic	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
									%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR									0.1	2	1	0.4	2	0.5	5	5	0.1	2	2	5	2	5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										3000	500	900	3600	3600	240000	1500	730		6000	10000		400000
AEC	**Location**	**Depth (m)**	**Field_ID**	**SampleCode**	**Sample Date**	**Lab Report**	**Monitoring_Zone**															
AEC7	R-BH29	0.9-1	R-BH29_0.9-1.0	ES2344223002	7/12/2023	ES2344223	Grass Area Rose Street Overbridge		15.3	<5	-	<1	7	-	6	9	<0.1	-	2	-	-	14
AEC7	R-BH34	0.1-0.2	R_BH34_0.1-0.2	ES2343534001	4/12/2023	ES2343534	Wyong Station Carpark East		5.5	<5	-	<1	10	-	17	13	<0.1	-	10	-	-	43
AEC7	R-BH34	1-1.2	R_BH34_1.0-1.2	ES2343534002	4/12/2023	ES2343534	Wyong Station Carpark East		13.1	<5	-	<1	12	-	20	28	<0.1	-	10	-	-	52
AEC7	R-BH34	2-2.2	R_BH34_2.0-2.2	ES2343534003	4/12/2023	ES2343534	Wyong Station Carpark East		17.6	8	-	<1	18	-	10	32	<0.1	-	4	-	-	36
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A) 0.2-0.3	ES2409727006	19/03/2024	ES2409727	Wyong Train Station		5.9	38	-	<1	12	-	94	174	<0.1	-	12	-	-	357
AEC7	R-CO01(A)	1.2-1.3	R-CO01(A)_1.2-1.3	ES2409727008	19/03/2024	ES2409727	Wyong Train Station		15.6	5	-	<1	13	-	10	20	<0.1	-	13	-	-	420
AEC8	ACM-TP09	0.035-0.1	ACM-TP09_0.035-0.1	ES2343854007	13/12/2023	ES2343854	Commuter Carpark		5.3	<5	-	<1	22	-	57	<5	<0.1	-	80	-	-	37
AEC8	A-TP09	0.35-0.7	A-TP09_0.35-0.7	ES2410544010	25/03/2024	ES2410544	Rose Street		15	<5	-	<1	6	-	<5	20	<0.1	-	<2	-	-	27
AEC9	ACM-BH09	0.6-0.7	ACM-BH09_0.6-0.7	ES2402822001	6/12/2023	ES2402822	Commuter Carpark		16.9	<5	-	<1	15	-	9	16	<0.1	-	4	-	-	9
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	ES2409727011	19/03/2024	ES2409727	Commuter Carpark		18.1	<5	-	<1	19	-	7	14	<0.1	-	6	-	-	10
AEC9	ACM-BH09(A)	1.8-1.9	ACM_BH09(A)_1.8-1.9	ES2409727013	19/03/2024	ES2409727	Commuter Carpark		18.7	7	-	<1	15	-	23	24	<0.1	-	7	-	-	40
AEC9	ACM-BH09(A)	1.8-1.9	QC100_20240319	ES2409727014	19/03/2024	ES2409727	Commuter Carpark		20.2	8	-	<1	14	-	24	24	<0.1	-	7	-	-	31
AEC9	ACM-BH09(A)	1.8-1.9	QC200-2024031S	S24-Ma0062587	25/03/2024	1081719	Commuter Carpark		-	13	-	<0.4	14	-	23	21	<0.1	-	<5	-	-	23
AEC9	A-TP13	0-0.2	A-TP13_0.0-0.2	ES2344603001	19/12/2023	ES2344603	Howarth Street		10.9	8	-	<1	22	-	64	143	0.1	-	10	-	-	333
AEC9	R-BH30	0-0.2	R-BH30_0.0-0.2_20231212	ES2343854001	12/12/2023	ES2343854	Howarth Street - North		6.8	8	-	<1	8	-	20	211	<0.1	-	3	-	-	247
AEC11	BH26	1.1-1.2	BH26_1.1-1.2	ES2409806003	24/03/2024	ES2409806	Pacific Highway		14.7	8	-	<1	19	-	61	73	<0.1	-	4	-	-	151
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	ES2409806004	24/03/2024	ES2409806	Pacific Highway		14.7	12	-	<1	32	-	31	71	<0.1	-	4	-	-	105
AEC11	BH26	1.5-1.6	QC100_20240324	ES2409806008	24/03/2024	ES2409806	Pacific Highway		15.5	9	-	<1	22	-	48	93	<0.1	-	4	-	-	155
AEC11	BH26	1.5-1.6	QC200_20240324	ES2409806009	24/03/2024	ES2409806	Pacific Highway		16	7	-	<1	19	-	36	82	<0.1	-	3	-	-	144
AEC11	BH26	1.5-1.6	QC200_20240324	S24-Ap0010501	24/03/2024	1084494	Pacific Highway		-	8.7	-	<0.4	23	-	23	50	<0.1	-	<5	-	-	77
AEC11	BH26	3.4-3.5	BH26_3.4-3.5	ES2409806006	24/03/2024	ES2409806	Pacific Highway		16.6	8	-	<1	28	-	<5	11	<0.1	-	<2	-	-	6
AEC11	BH26(B)_SV1	0.4-0.5	BH26(B)_0.4-0.5	ES2409806007	24/03/2024	ES2409806	Pacific Highway		14.7	12	-	<1	30	-	5	16	<0.1	-	2	-	-	15
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	ES2409702001	17/03/2024	ES2409702	Anzac Avenue		8.8	9	-	<1	26	-	<5	8	<0.1	-	2	-	-	10
AEC11	BH30	0.4-0.5	QC100_202240317	ES2409702004	17/03/2024	ES2409702	Anzac Avenue		8.6	17	-	<1	41	-	<5	11	<0.1	-	3	-	-	8
AEC11	BH30	0.9-1	BH30_0.9-1.0	ES2409702002	17/03/2024	ES2409702	Anzac Avenue		17.2	21	-	<1	70	-	<5	16	<0.1	-	<2	-	-	<5
AEC11	BH30	0.9-1	QC200-20240317	S24-Ma0062673	17/03/2024	1081737	Anzac Avenue		-	28	-	<0.4	78	-	<5	21	<0.1	-	<5	-	-	6.6
AEC12	BH27	1.3-1.4	BH27_1.3-1.4	ES2410544024	25/03/2024	ES2410544	Pacific Highway		22.1	<5	-	<1	20	-	<5	8	<0.1	-	<2	-	-	<5
AEC12	BH27	2.3-2.4	BH27_2.3-2.4	ES2410544025	25/03/2024	ES2410544	Pacific Highway		22	10	-	2	36	-	<5	14	<0.1	-	<2	-	-	<5
AEC13	BH25	0.1-0.2	BH25_0.1-0.2	ES2343534006	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		17.1	22	-	<1	14	-	53	136	0.1	-	10	-	-	210
AEC13	BH25	0.7-0.8	BH25_0.7-0.8	ES2343534007	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		17.8	8	-	<1	9	-	14	343	<0.1	-	3	-	-	198
AEC13	BH25	1.2-1.3	BH25_1.2-1.3	ES2343534008	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		15.9	7	-	<1	10	-	11	45	<0.1	-	3	-	-	56
AEC15	ACM-BH04	0.5-0.6	ACM_BH04_0.5-0.6	ES2407037005	28/02/2024	ES2407037	Panonia Road		11.8	<5	-	<1	10	-	7	24	<0.1	-	4	-	-	24
AEC15	ACM-BH04	1.4-1.5	ACM_BH04_1.4-1.5	ES2407037006	28/02/2024	ES2407037	Panonia Road		8.8	<5	-	<1	14	-	6	27	<0.1	-	4	-	-	22
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	ES2410587014	26/03/2024	ES2410587	Panonia Road		13.2	<5	-	<1	9	-	6	21	<0.1	-	3	-	-	20
AEC15	ACM-TP01	0.7-1.3	ACM-TP01_0.7-1.3m	ES2410587012	26/03/2024	ES2410587	Panonia Road		14	<5	-	<1	8	-	6	28	<0.1	-	3	-	-	22
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	ES2344222001	18/12/2023	ES2344222	Afflux Excavation Area		14.2	<5	-	<1	14	-	14	90	<0.1	-	4	-	-	68
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	ES2344222002	18/12/2023	ES2344222	Afflux Excavation Area		12.8	<5	-	<1	17	-	10	16	<0.1	-	4	-	-	25
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	ES2410544033	27/03/2024	ES2410544	South Tacoma Road		4.3	<5	-	<1	22	-	14	29	<0.1	-	19	-	-	39
AEC15	A-TP07	0.9-1.3	A-TP07_0.9-1.3m	ES2410544030	27/03/2024	ES2410544	South Tacoma Road		11.6	5	-	<1	18	-	13	22	<0.1	-	6	-	-	27
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	ES2409869022	21/03/2024	ES2409869	South Tacoma Road		31.2	<5	-	<1	12	-	21	62	<0.1	-	8	-	-	147
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	ES2414454009	20/03/2024	ES2414454	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	ES2409869032	22/03/2024	ES2409869	Pacific Highway Grass Verge		10.9	<5	-	<1	8	-	6	23	<0.1	-	3	-	-	14
AEC15	R-BH08	6.8-7.14	R-BH08_6.8-7.14	ES2413528016	18/03/2024	ES2413528	Pacific Highway Grass Verge		40	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	R-BH08	11.8-12.28	R-BH08_11.8-12.28	ES2413528017	18/03/2024	ES2413528	Pacific Highway Grass Verge		19.7	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	ES2407037008	4/03/2024	ES2407037	Panonia Road		5	8	-	<1	9	-	6	51	<0.1	-	5	-	-	33
AEC15	R-BH10A	1-1.2	R-BH10A_1.0-1.2	ES2413528012	3/04/2024	ES2413528	Pacific Highway/River Road Grass Area		15.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	R-BH10A	2.8-2.95	R-BH10A_2.8-2.95	ES2413528013	3/04/2024	ES2413528	Pacific Highway/River Road Grass Area		12.4	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC16	A-BH17	0.5-0.7	A-BH17_0.5-0.6	ES2407462001	4/03/2024	ES2407462	River Road		5.4	<5	-	<1	10	-	58	27	<0.1	-	7	-	-	41
AEC16	BH39	0.6-0.7	BH39_0.6-0.7	ES2409702006	18/03/2024	ES2409702	Pacific Highway Verge		8.8	7	-	<1	38	-	55	11	<0.1	-	8	-	-	27
AEC16	BH39	1.2-1.3	BH39_1.2-1.3	ES2409702007	18/03/2024	ES2409702	Pacific Highway Verge		13.9	10	-	<1	22	-	9	11	<0.1	-	6	-	-	30
AEC16	BH39	1.2-1.3	QC100_202240318	ES2409702008	18/03/2024	ES2409702	Pacific Highway Verge		14.3	8	-	<1	19	-	8	11	<0.1	-	5	-	-	26
AEC16	R_TP03	0.55-1.3	R_TP03_0.55-1.30	ES2409869003	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area		6.9	7	-	<1	8	-	<5	45	<0.1	-	<2	-	-	27
AEC16	R_TP03	1.3-2	R_TP03_1.30-2.00	ES2409869004	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area		10.3	6	-	<1	15	-	<5	9	<0.1	-	2	-	-	12
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	ES2337379002	28/10/2023	ES2337379	Rail 6 Foot		14	40 - 46	<1	<0.4	10	<0.5	355	84 - 104	<0.1	<2	16 - 23	<5	<2	328
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	ES2337379004	28/10/2023	ES2337379	Rail 6 Foot		7.8	45 - 200	<1	1 - 3	18	<0.5	126	308 - 4770	<0.1	2	15 - 21	<5	4	689
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	ES2337379008	29/10/2023	ES2337379	Rail 6 Foot		5.8	7 - 9	<1	<0.4	13	<0.5	12	42 - 48	<0.1	<2	4 - 5	<5	<2	203
AEC17	HA58	0-0.2	HA58_0.0-0.2	ES2409702013	18/03/2024	ES2409702	Pacific Highway		18.7	26	-	<1	15	-	29	60	<0.1	-	5	-	-	116
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	ES2409702016	18/03/2024	ES2409702	Pacific Highway		14.6	10	-	<1	17	-	6	11	<0.1	-	4	-	-	26
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	ES2409702019	18/03/2024	ES2409702	Pacific Highway		11.9	8	-	<1	29	-	9	17	<0.1	-	18	-	-	48
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-06	ES2409765006	22/03/2024	ES2409765	Rail Cess		7.2	38	-	<1	17	-	84	261	<0.1	-	14	-	-	1210
AEC17	R-BH16A	0.4-0.6	QC100_20240322	ES2409765001	22/03/2024	ES2409765	Rail Cess		7.8	15	-	<1	11	-	30	88	<0.1	-	5	-	-	379
AEC17	R-BH16A	0.4-0.6	QC200_20240322	ES2409765002	22/03/2024	ES2409765	Rail Cess		9.3	16	-	<1	7	-	30	88	<0.1	-	6	-	-	304
AEC17	R-BH16A	0.4-0.6	QC200_20240322 €	S24-Ap0008519	22/03/2024	1084238	Rail Cess		-	46	-	<0.4	22	-	140	650	<0.1	-	17	-	-	2000
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	ES2341790016	30/11/2023	ES2341790	Rail Cess		20	34	-	<1	12	-	66	335	<0.1	-	9	-	-	1610
AEC17	R-BH20B	1.5-1.6	R-BH20B_1.5-1.6	ES2341790017	30/11/2023	ES2341790	Rail Cess		12.7	<5	-	<1	16	-	7	16	<0.1	-	6	-	-	33
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	ES2344549012	15/12/2023	ES2344549	Railway Square		8.6	<5	-	<1	25	-	13	5	<0.1	-	27	-	-	14
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	ES2344549013	15/12/2023	ES2344549	Railway Square		17.1	<5	-	<1	12	-	6	8	<0.1	-	4	-	-	16

Table B2
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

											Metals											
								Moisture Content	Arsenic	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
								%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR								0.1	2	1	0.4	2	0.5	5	5	0.1	2	2	5	2	5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil									3000	500	900	3600	3600	240000	1500	730		6000	10000		400000
AEC	**Location**	**Depth (m)**	**Field_ID**	**SampleCode**	**Sample Date**	**Lab Report**	**Monitoring_Zone**															
AEC18	A-BH06	3-3.1	A-BH06_3.0-3.1	ES2344549015	17/12/2023	ES2344549	Railway Square	11.4	8	-	<1	14	-	10	8	<0.1	-	7	-	-	26
AEC18	A-BH06	3-3.1	QC200_20231217	S23-De0054725	17/12/2023	1056637	Railway Square	-	9.4	-	<0.4	15	-	14	8.1	<0.1	-	8.7	-	-	32
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	ES2344549006	15/12/2023	ES2344549	Railway Square	7	<5	-	<1	58	-	49	<5	<0.1	-	99	-	-	40
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	ES2344549009	15/12/2023	ES2344549	Railway Square	18.5	<5	-	<1	16	-	16	6	<0.1	-	19	-	-	18
AEC18	BH41	0.8-1	BH41_0.8-1.0	ES2408075003	12/03/2024	ES2408075	Pacific Highway Verge	15.3	8	-	<1	11	-	10	<5	<0.1	-	2	-	-	18
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	ES2408075014	12/03/2024	ES2408075	Pacific Highway Verge	16.1	<5	-	<1	8	-	14	<5	<0.1	-	6	-	-	32
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	ES2344549001	15/12/2023	ES2344549	Railway Square	13.4	9	-	<1	32	-	29	6	<0.1	-	20	-	-	32
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	ES2344549003	15/12/2023	ES2344549	Railway Square	12.7	8	-	<1	15	-	8	8	<0.1	-	5	-	-	17
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	ES2408075006	11/03/2024	ES2408075	Howarth Street	17.2	6	-	<1	9	-	24	98	<0.1	-	5	-	-	88
AEC19	BH42	3-3.1	BH42_3.0-3.1	ES2408075010	11/03/2024	ES2408075	Howarth Street	18.9	<5	-	<1	9	-	<5	11	<0.1	-	<2	-	-	15
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	ES2410587023	26/03/2024	ES2410587	Pacific Highway	15.4	6	-	<1	18	-	5	8	<0.1	-	4	-	-	12
AEC21	BH28	0.3-0.4	QC100_20240326	ES2410587032	26/03/2024	ES2410587	Pacific Highway	15.3	9	-	<1	26	-	5	9	<0.1	-	4	-	-	9
AEC21	BH28	0.3-0.4	QC200_20240326	S24-Ap0010434	26/03/2024	1084484	Pacific Highway	-	8.1	-	<0.4	24	-	5.6	11	<0.1	-	<5	-	-	10
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	ES2410587026	26/03/2024	ES2410587	Pacific Highway	17.6	5	-	<1	15	-	<5	5	<0.1	-	<2	-	-	<5
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	ES2410587028	26/03/2024	ES2410587	Pacific Highway	12	<5	-	<1	9	-	<5	8	<0.1	-	3	-	-	8
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	ES2410587030	26/03/2024	ES2410587	Pacific Highway	14.4	<5	-	<1	14	-	8	6	<0.1	-	2	-	-	10
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	ES2409727020	19/03/2024	ES2409727	Apex Park	4.4	<5	-	<1	65	-	60	<5	<0.1	-	104	-	-	49
AEC22	BH32	0.65-0.8	BH32_0.65-0.8	ES2409727022	19/03/2024	ES2409727	Apex Park	13.5	6	-	<1	24	-	8	9	<0.1	-	4	-	-	12
AEC22	BH33	0.13-0.3	BH33_0.13-0.3	ES2409727025	19/03/2024	ES2409727	Apex Park	6.3	<5	-	<1	20	-	8	8	<0.1	-	5	-	-	15
AEC22	BH33	0.8-1	BH33_0.8-1.0	ES2409727027	19/03/2024	ES2409727	Apex Park	14.6	6	-	<1	22	-	7	9	<0.1	-	4	-	-	11
AEC23	BH35	0.3-0.4	BH35_0.3-0.4	ES2409869026	22/03/2024	ES2409869	Pacific Highway	13.4	-	-	-	-	-	-	11	-	-	-	-	-	-
AEC23	BH35	0.3-0.4	QC100_20240322	ES2409869035	22/03/2024	ES2409869	Pacific Highway	15.6	-	-	-	-	-	-	12	-	-	-	-	-	-
AEC23	BH35	0.3-0.4	QC200_20240322	ES2409869036	22/03/2024	ES2409869	Pacific Highway	14.3	-	-	-	-	-	-	11	-	-	-	-	-	-
AEC23	BH35	0.3-0.4	QC200_20240322	S24-Ap0010491	22/03/2024	1084489	Pacific Highway	-	5.5	-	<0.4	12	-	6.6	13	<0.1	-	<5	-	-	17
AEC23	BH35	0.8-0.9	BH35_0.8-0.9	ES2409869027	22/03/2024	ES2409869	Pacific Highway	18.4	-	-	-	-	-	-	7	-	-	-	-	-	-
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	ES2341790002	1/12/2023	ES2341790	Rail Cess	15.2	13	-	<1	14	-	21	23	<0.1	-	23	-	-	78
AEC24	A-BH13	2-2.2	A-BH13_2.0-2.2	ES2341790003	1/12/2023	ES2341790	Rail Cess	13.9	10	-	<1	16	-	18	24	<0.1	-	11	-	-	56
AEC24	A-BH14	1-1.2	A-BH14_1.0-1.2	ES2341790009	1/12/2023	ES2341790	Rail Cess	12.1	76	-	<1	9	-	66	86	<0.1	-	10	-	-	228
AEC24	A-BH14	2-2.2	A-BH14_2.0-2.2	ES2341790010	1/12/2023	ES2341790	Rail Cess	23.3	<5	-	<1	4	-	8	7	<0.1	-	<2	-	-	16
AEC24	A-BH15	0.1-0.2	A_BH15_0.1-0.2	ES2341301001	27/11/2023	ES2341301	Rail Cess	6.5	5	-	<1	5	-	17	44	<0.1	-	5	-	-	165
AEC24	A-BH15	0.1-0.2	R_BH19_0.1-0.2	ES2341301009	27/11/2023	ES2341301	Rail Cess	6.4	5	-	<1	6	-	18	51	<0.1	-	7	-	-	161
AEC24	A-BH15	0.3-0.4	A_BH15_0.3-0.4	ES2341301002	27/11/2023	ES2341301	Rail Cess	16.3	6	-	<1	8	-	14	26	<0.1	-	8	-	-	99
AEC24	A-BH15	1.5-1.6	R_BH19_1.5-1.6	ES2341301010	28/11/2023	ES2341301	Rail Cess	10.4	8	-	<1	14	-	8	18	<0.1	-	5	-	-	53
AEC24	A-BH16A	0.5-0.6	A-BH16A_0.5-0.6	ES2341790023	1/12/2023	ES2341790	Rail Cess	10.3	12	-	<1	15	-	40	70	<0.1	-	12	-	-	225
AEC24	A-BH16A	0.5-0.6	QC100_011223	ES2341790032	1/12/2023	ES2341790	Rail Cess	4.2	8	-	<1	8	-	48	112	<0.1	-	6	-	-	279
AEC24	A-BH16A	0.5-0.6	QC200_011223	ES2341790033	1/12/2023	ES2341790	Rail Cess	10	9	-	<1	11	-	37	80	<0.1	-	7	-	-	229
AEC24	A-BH16A	1.5-1.6	A-BH16A_1.5-1.6	ES2341790024	1/12/2023	ES2341790	Rail Cess	8.2	7	-	<1	10	-	193	15	<0.1	-	11	-	-	79
AEC24	R_TP06	0.3-0.5	R_TP06_0.3-0.5	ES2409869006	21/03/2024	ES2409869	Pacific Highway Grass Verge	6.8	<5	-	<1	5	-	7	17	<0.1	-	2	-	-	31
AEC24	R_TP07	0-0.1	QC100_20240321	ES2409869011	21/03/2024	ES2409869	Pacific Highway Grass Verge	18.5	<5	-	<1	10	-	14	38	<0.1	-	5	-	-	106
AEC24	R_TP07	0-0.1	QC200_20240321	ES2409869010	21/03/2024	ES2409869	Pacific Highway Grass Verge	13.6	<5	-	<1	5	-	<5	10	<0.1	-	<2	-	-	14
AEC24	R_TP07	0-0.1	QC200_20240321	S24-Ap0010490	21/03/2024	1084489	Pacific Highway Grass Verge	-	12	-	<0.4	9	-	<5	11	<0.1	-	<5	-	-	16
AEC24	R_TP07	0-0.1	R_TP07_0-0.1	ES2409869008	21/03/2024	ES2409869	Pacific Highway Grass Verge	15.9	<5	-	<1	10	-	14	41	<0.1	-	5	-	-	96
AEC24	R_TP07	0.3-0.5	R_TP07_0.3-0.5	ES2409869009	21/03/2024	ES2409869	Pacific Highway Grass Verge	11.6	<5	-	<1	9	-	10	38	<0.1	-	3	-	-	67
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	ES2409727030	19/03/2024	ES2409727	Apex Park	7.8	6	-	<1	14	-	17	23	0.1	-	4	-	-	33
AEC24	R_TP12	0.1-0.2	R_TP12_0.1-0.2	ES2411530014	3/04/2024	ES2411530	Pacific Highway	16.5	<5	-	<1	23	-	13	20	<0.1	-	6	-	-	21
AEC24	R_TP12	1-1.1	R_TP12_1.0-1.1	ES2411530015	3/04/2024	ES2411530	Pacific Highway	17.5	<5	-	<1	9	-	<5	<5	<0.1	-	3	-	-	<5
AEC24	R-TP13	1.5-1.7	20240407_R-TP13_1.5-1.7m	ES2411715001	7/04/2024	ES2411715	Pacific Highway	18.5	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B3
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

						TRH							TRH - Silica Gel				BTEXN							
						C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	>C10-C16 fraction (Silica Gel)	>C16-C34 fraction (Silica Gel)	>C34-C40 fraction (Silica Gel)	>C10-C40 fraction (sum) (Silica Gel)	Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Total BTEX
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						10	10	50	50	100	100	50	50	100	100	50	0.5	0.1	0.1	0.1	0.2	0.1	0.3	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench) Csat, Clay							850	560									10	430	630	68			330	
CRC Care 2011 Table B4 Com/Ind D Soil HSL Direct Contact							26000	20000		27000	38000			27000	38000			430	99000	27000			81000	
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)							82000	62000		85000	120000			85000	120000			1100	120000	85000			130000	
CRC Care HSL-D Commercial / Industrial						26000			20000	27000	38000						11000	430	99000	27000			81000	
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)																		**5.1**	**4700**	**25**		**280**	**250**	
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand																								
0-2m							NL	NL										77	NL	NL			NL	
2-4m							NL	NL										160	NL	NL			NL	
>4m							NL	NL										NL	NL	NL			NL	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																								
0-1m							260	NL									NL	3	NL	NL			230	
1-2m							*370*	*NL*									*NL*	*3*	*NL*	*NL*			*NL*	
2-4m							630	NL									NL	3	NL	NL			NL	
>4m							NL	NL									NL	3	NL	NL			NL	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																		
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	27/03/2024	ES2410231	Ampol, Tuggerah	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC1	BH01A	2.8-2.9	BH01A_2.8-2.9	27/03/2024	ES2410231	Ampol, Tuggerah	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC1	BH01A	2.8-2.9	QC100_20240327	27/03/2024	ES2410231	Ampol, Tuggerah	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC1	BH01A	2.8-2.9	QC200_20240327	27/03/2024	1083748	Ampol, Tuggerah	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC1	BH02	1.3-1.4	BH02_1.3-1.4	3/04/2024	ES2410959	Ampol, Tuggerah	<10	<10	<50	<50	210	<100	210	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC1	BH02	2.8-2.9	BH02_2.8-2.9	3/04/2024	ES2410959	Ampol, Tuggerah	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26	1.1-1.2	BH26_1.1-1.2	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	170	<100	170	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	240	<100	240	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26	1.5-1.6	QC100_20240324	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	200	<100	200	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26	1.5-1.6	QC200_20240324	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	180	<100	180	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26	1.5-1.6	QC200_20240324	24/03/2024	1084494	Pacific Highway	<20	<20	<50	<50	470	340	810	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC11	BH26	3.4-3.5	BH26_3.4-3.5	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH26(B)_SV1	0.4-0.5	BH26(B)_0.4-0.5	24/03/2024	ES2409806	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH30	0.4-0.5	QC100_202240317	17/03/2024	ES2409702	Anzac Avenue	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC11	BH30	0.9-1	QC200-20240317	17/03/2024	1081737	Anzac Avenue	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC12	BH27	1.3-1.4	BH27_1.3-1.4	25/03/2024	ES2410544	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC12	BH27	2.3-2.4	BH27_2.3-2.4	25/03/2024	ES2410544	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC13	BH25	0.1-0.2	BH25_0.1-0.2	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	160	<100	160	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC13	BH25	0.7-0.8	BH25_0.7-0.8	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC13	BH25	1.2-1.3	BH25_1.2-1.3	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	ACM-BH04	0.5-0.6	ACM_BH04_0.5-0.6	28/02/2024	ES2407037	Panonia Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	26/03/2024	ES2410587	Panonia Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	ACM-TP01	0.7-1.3	ACM-TP01_0.7-1.3m	26/03/2024	ES2410587	Panonia Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	18/12/2023	ES2344222	Afflux Excavation Area	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	18/12/2023	ES2344222	Afflux Excavation Area	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	27/03/2024	ES2410544	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	A-TP07	0.9-1.3	A-TP07_0.9-1.3m	27/03/2024	ES2410544	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	21/03/2024	ES2409869	South Tacoma Road	<10	<10	<50	<50	170	<100	170	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	22/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	4/03/2024	ES2407037	Panonia Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	A-BH17	0.5-0.7	A-BH17_0.5-0.6	4/03/2024	ES2407462	River Road	<10	<10	<50	<50	120	<100	120	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	BH39	0.6-0.7	BH39_0.6-0.7	18/03/2024	ES2409702	Pacific Highway Verge	36	36	90	90	<100	120	210	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	BH39	1.2-1.3	BH39_1.2-1.3	18/03/2024	ES2409702	Pacific Highway Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	BH39	1.2-1.3	QC100_202240318	18/03/2024	ES2409702	Pacific Highway Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	R_TP03	0.55-1.3	R_TP03_0.55-1.30	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC16	R_TP03	1.3-2	R_TP03_1.30-2.00	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	<10	-	-	-	-	-	-	<50	<100	<100	<50	-	<0.2	<0.5	<0.5	<0.5	<0.5	-	-
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	<10	-	-	-	-	-	-	<50	<100	<100	<50	-	<0.2	<0.5	<0.5	<0.5	<0.5	-	-
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	<10	-	-	-	-	-	-	<50	<100	<100	<50	-	<0.2	<0.5	<0.5	<0.5	<0.5	-	-
AEC17	HA58	0-0.2	HA58_0.0-0.2	18/03/2024	ES2409702	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	18/03/2024	ES2409702	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	18/03/2024	ES2409702	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-06	22/03/2024	ES2409765	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	R-BH16A	0.4-0.6	QC100_20240322	22/03/2024	ES2409765	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	R-BH16A	0.4-0.6	QC200_20240322	22/03/2024	ES2409765	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC17	R-BH16A	0.4-0.6	QC200_20240322 €	22/03/2024	1084238	Rail Cess	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	30/11/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

Table B3
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

									TRH							TRH - Silica Gel				BTEXN							
									C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	>C10-C16 fraction (Silica Gel)	>C16-C34 fraction (Silica Gel)	>C34-C40 fraction (Silica Gel)	>C10-C40 fraction (sum) (Silica Gel)	Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Total BTEX
									mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR									10	10	50	50	100	100	50	50	100	100	50	0.5	0.1	0.1	0.1	0.2	0.1	0.3	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench) Csat, Clay										850	560									10	430	630	68			330	
CRC Care 2011 Table B4 Com/Ind D Soil HSL Direct Contact										26000	20000		27000	38000			27000	38000			430	99000	27000			81000	
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)										82000	62000		85000	120000			85000	120000			1100	120000	85000			130000	
CRC Care HSL-D Commercial / Industrial									26000			20000	27000	38000						11000	430	99000	27000			81000	
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)																					**5.1**	**4700**	**25**		**280**	**250**	
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand																											
0-2m										NL	NL										77	NL	NL			NL	
2-4m										NL	NL										160	NL	NL			NL	
>4m										NL	NL										NL	NL	NL			NL	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																											
0-1m										260	NL									NL	3	NL	NL			230	
1-2m										*370*	*NL*									*NL*	*3*	*NL*	*NL*			*NL*	
2-4m										630	NL									NL	3	NL	NL			NL	
>4m										NL	NL									NL	3	NL	NL			NL	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																					
AEC17	R-BH20B	1.5-1.6	R-BH20B_1.5-1.6	30/11/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	A-BH06	3-3.1	A-BH06_3.0-3.1	17/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	A-BH06	3-3.1	QC200_20231217	17/12/2023	1056637	Railway Square	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP16	0-0.2	ACM_TP16_0.0-0.2	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19	0.6-0.8	ACM_TP19_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19	0.6-0.8	QC101_20240408	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19	0.6-0.8	QC201_20240408	8/04/2024	1087307	Pacific Highway	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19A_1.6-1.7	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19A_2.8-2.9	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC100_20240408	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC200_20240408	8/04/2024	1087307	Pacific Highway	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	McPherson Road	<10	<10	260	260	200	<100	460	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	7/04/2024	ES2411530	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH05	0.8-0.9	QC100_20240407	7/04/2024	ES2411530	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH05	0.8-0.9	QC200_20240407	8/04/2024	1087305	McPherson Road	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-TP15	0.5-1	ACM-TP15_0.5-1.0m	26/03/2024	ES2410587	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	18/12/2023	ES2344222	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	18/12/2023	ES2344222	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	26/03/2024	ES2410587	McPherson Road	<10	<10	<50	<50	110	110	220	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	26/03/2024	ES2410587	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	27/02/2024	ES2406391	South Tacoma Road	<10	<10	<50	<50	130	<100	130	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	<10	<10	<50	<50	710	130	840	-	-	-	-	6	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH06	0.8-0.9	BH06_0.8-0.9	8/04/2024	ES2411530	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH06	2-2.5	QC100_20240408	8/04/2024	ES2411530	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	8/04/2024	1087305	South Tacoma Road	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

Table B3
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

						TRH							TRH - Silica Gel				BTEXN							
						C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	>C10-C16 fraction (Silica Gel)	>C16-C34 fraction (Silica Gel)	>C34-C40 fraction (Silica Gel)	>C10-C40 fraction (sum) (Silica Gel)	Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Total BTEX
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR						10	10	50	50	100	100	50	50	100	100	50	0.5	0.1	0.1	0.1	0.2	0.1	0.3	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench) Csat, Clay							850	560									10	430	630	68			330	
CRC Care 2011 Table B4 Com/Ind D Soil HSL Direct Contact							26000	20000		27000	38000			27000	38000			430	99000	27000			81000	
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)							82000	62000		85000	120000			85000	120000			1100	120000	85000			130000	
CRC Care HSL-D Commercial / Industrial						26000			20000	27000	38000						11000	430	99000	27000			81000	
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)																		**5.1**	**4700**	**25**		**280**	**250**	
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand																								
0-2m							NL	NL										77	NL	NL			NL	
2-4m							NL	NL										160	NL	NL			NL	
>4m							NL	NL										NL	NL	NL			NL	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																								
0-1m							260	NL									NL	3	NL	NL			230	
1-2m							*370*	*NL*									*NL*	*3*	*NL*	*NL*			*NL*	
2-4m							630	NL									NL	3	NL	NL			NL	
>4m							NL	NL									NL	3	NL	NL			NL	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																		
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC21	BH28	0.3-0.4	QC100_20240326	26/03/2024	ES2410587	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC21	BH28	0.3-0.4	QC200_20240326	26/03/2024	1084484	Pacific Highway	23	23	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	19/03/2024	ES2409727	Apex Park	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC22	BH32	0.65-0.8	BH32_0.65-0.8	19/03/2024	ES2409727	Apex Park	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC22	BH33	0.13-0.3	BH33_0.13-0.3	19/03/2024	ES2409727	Apex Park	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC22	BH33	0.8-1	BH33_0.8-1.0	19/03/2024	ES2409727	Apex Park	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC23	BH35	0.3-0.4	BH35_0.3-0.4	22/03/2024	ES2409869	Pacific Highway	<10	<10	<50	<50	140	<100	140	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC23	BH35	0.3-0.4	QC100_20240322	22/03/2024	ES2409869	Pacific Highway	<10	<10	<50	<50	120	<100	120	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC23	BH35	0.3-0.4	QC200_20240322	22/03/2024	ES2409869	Pacific Highway	<10	<10	<50	<50	120	<100	120	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC23	BH35	0.3-0.4	QC200_20240322	22/03/2024	1084489	Pacific Highway	<20	<20	<50	<50	150	<100	150	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC23	BH35	0.8-0.9	BH35_0.8-0.9	22/03/2024	ES2409869	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH13	2-2.2	A-BH13_2.0-2.2	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH14	1-1.2	A-BH14_1.0-1.2	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH14	2-2.2	A-BH14_2.0-2.2	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH15	0.1-0.2	A_BH15_0.1-0.2	27/11/2023	ES2341301	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH15	0.1-0.2	R_BH19_0.1-0.2	27/11/2023	ES2341301	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH15	0.3-0.4	A_BH15_0.3-0.4	27/11/2023	ES2341301	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH15	1.5-1.6	R_BH19_1.5-1.6	28/11/2023	ES2341301	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH16A	0.5-0.6	A-BH16A_0.5-0.6	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH16A	0.5-0.6	QC100_011223	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH16A	0.5-0.6	QC200_011223	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	A-BH16A	1.5-1.6	A-BH16A_1.5-1.6	1/12/2023	ES2341790	Rail Cess	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP06	0.3-0.5	R_TP06_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP07	0-0.1	QC100_20240321	21/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	150	<100	150	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP07	0-0.1	QC200_20240321	21/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP07	0-0.1	QC200_20240321	21/03/2024	1084489	Pacific Highway Grass Verge	<20	<20	<50	<50	<100	<100	<100	-	-	-	-	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-
AEC24	R_TP07	0-0.1	R_TP07_0-0.1	21/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP07	0.3-0.5	R_TP07_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	19/03/2024	ES2409727	Apex Park	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP12	0.1-0.2	R_TP12_0.1-0.2	3/04/2024	ES2411530	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R_TP12	1-1.1	R_TP12_1.0-1.1	3/04/2024	ES2411530	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC24	R-TP13	1.5-1.7	20240407_R-TP13_1.5-1.7m	7/04/2024	ES2411715	Pacific Highway	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC6	R-BH13A	0.6-0.7	R-BH13A_0.6-0.7	26/02/2024	ES2406391	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC6	R-BH13A	1.5-1.6	R-BH13A_1.5-1.6	26/02/2024	ES2406391	South Tacoma Road	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	5/12/2023	ES2343534	Wyong Station Carpark West	<10	<10	<50	<50	140	<100	140	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	7/12/2023	ES2344617	Wyong Station Carpark East	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	7/12/2023	ES2344617	Wyong Station Carpark East	<10	<10	160	160	1880	260	2300	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	ACM-BH05(A)	0.2-0.2	ACM_BH05(A)_0.2	19/03/2024	ES2409727	Wyong Station Carpark East	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

Table B3
Soil Analytical Results - Heavy Metals
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

									TRH							TRH - Silica Gel				BTEXN							
									C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	>C10-C16 fraction (Silica Gel)	>C16-C34 fraction (Silica Gel)	>C34-C40 fraction (Silica Gel)	>C10-C40 fraction (sum) (Silica Gel)	Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Total BTEX
									mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR									10	10	50	50	100	100	50	50	100	100	50	0.5	0.1	0.1	0.1	0.2	0.1	0.3	0.2
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench) Csat, Clay										850	560									10	430	630	68			330	
CRC Care 2011 Table B4 Com/Ind D Soil HSL Direct Contact										26000	20000		27000	38000			27000	38000			430	99000	27000			81000	
CRC Care 2011 Table B4 Soil HSL Direct Contact (Int. Main. Worker)										82000	62000		85000	120000			85000	120000			1100	120000	85000			130000	
CRC Care HSL-D Commercial / Industrial									26000			20000	27000	38000						11000	430	99000	27000			81000	
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)																					**5.1**	**4700**	**25**		**280**	**250**	
CRC Care 2011 Table B3 Soil HSL Int. Main. Worker (Shallow Trench), Sand																											
0-2m										NL	NL										77	NL	NL			NL	
2-4m										NL	NL										160	NL	NL			NL	
>4m										NL	NL										NL	NL	NL			NL	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																											
0-1m										260	NL									NL	3	NL	NL			230	
1-2m										*370*	*NL*									*NL*	*3*	*NL*	*NL*			*NL*	
2-4m										630	NL									NL	3	NL	NL			NL	
>4m										NL	NL									NL	3	NL	NL			NL	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																					
AEC7	HA56	0.3-0.4	HA56_0.3-0.4	18/03/2024	ES2413882	Wyong Train Station	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	HA57	0.3-0.4	HA57_0.3-0.4	18/03/2024	ES2413882	Wyong Train Station	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R_BH28(A)	0.8-0.9	R_BH28(A)_0.8-0.9	19/03/2024	ES2409727	Rose Street Roundabout	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH26A	0.4-0.5	R-BH26A_0.4-0.5	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH26A	0.9-1	R-BH26A_0.9-1.0	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH27A	0.7-0.8	R-BH27A_0.7-0.8	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	7/12/2023	ES2344223	Grass Area Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH29	0.9-1	R-BH29_0.9-1.0	7/12/2023	ES2344223	Grass Area Rose Street Overbridge	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH34	0.1-0.2	R_BH34_0.1-0.2	4/12/2023	ES2343534	Wyong Station Carpark East	<10	<10	<50	<50	100	120	220	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH34	1-1.2	R_BH34_1.0-1.2	4/12/2023	ES2343534	Wyong Station Carpark East	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-BH34	2-2.2	R_BH34_2.0-2.2	4/12/2023	ES2343534	Wyong Station Carpark East	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A)_0.2-0.3	19/03/2024	ES2409727	Wyong Train Station	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC7	R-CO01(A)	1.2-1.3	R-CO01(A)_1.2-1.3	19/03/2024	ES2409727	Wyong Train Station	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	19/03/2024	ES2409727	Commuter Carpark	<10	<10	<50	<50	<100	<100	<50	-	-	-	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
NL - non limiting

Table B4
Soil Analytical Results - PAHs and Phenols
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Polynuclear Aromatic Hydrocarbons																	Phenolic Compounds											
							Benzo(a)pyrene TEQ calc (Half)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz[a]anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(b+j) & Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							40																	4000		240000										660
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																														
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	27/03/2024	ES2410231	Ampol, Tuggerah	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	1.4	<0.5	<0.5	0.5	-	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	4.3	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC1	BH01A	2.8-2.9	BH01A_2.8-2.9	27/03/2024	ES2410231	Ampol, Tuggerah	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC1	BH01A	2.8-2.9	QC100_20240327	27/03/2024	ES2410231	Ampol, Tuggerah	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC1	BH01A	2.8-2.9	QC200_20240327	27/03/2024	1083748	Ampol, Tuggerah	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1
AEC1	BH02	1.3-1.4	BH02_1.3-1.4	3/04/2024	ES2410959	Ampol, Tuggerah	9	<0.5	1.5	<0.5	1.2	<0.5	6	15.2	5.2	3.1	7	-	6.3	5.2	13.2	4.5	0.7	3.7	72.8	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC1	BH02	2.8-2.9	BH02_2.8-2.9	3/04/2024	ES2410959	Ampol, Tuggerah	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH26	1.1-1.2	BH26_1.1-1.2	24/03/2024	ES2409806	Pacific Highway	5.6	<0.5	0.6	<0.5	0.9	<0.5	2.9	8.2	3.4	2	4.6	-	4.1	3.4	7.6	3	<0.5	2.4	43.1	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	6.8	<0.5	0.8	<0.5	1.3	<0.5	4.2	10.2	4.2	2.3	5.4	-	4.7	4.1	9.4	3.3	0.6	2.7	53.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH26	1.5-1.6	QC100_20240324	24/03/2024	ES2409806	Pacific Highway	6.8	<0.5	0.6	<0.5	1.2	<0.5	4.2	10.5	4	2.4	5.3	-	4.7	4	9.6	3.4	0.6	2.9	53.4	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH26	1.5-1.6	QC200_20240324	24/03/2024	ES2409806	Pacific Highway	4.8	<0.5	<0.5	<0.5	0.6	<0.5	2.2	7.1	2.8	1.7	3.8	-	3.5	2.8	6.7	2.6	<0.5	2.1	35.9	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH26	1.5-1.6	QC200_20240324	24/03/2024	1084494	Pacific Highway	2.9	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	4.6	1.6	2	1.7	-	2	2	4.4	1.3	<0.5	0.8	22	-	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1
AEC11	BH26	3.4-3.5	BH26_3.4-3.5	24/03/2024	ES2409806	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH26(B)_SV1	0.4-0.5	BH26(B)_0.4-0.5	24/03/2024	ES2409806	Pacific Highway	2	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	2.6	1.2	0.7	1.5	-	1.3	1.2	2.3	0.8	<0.5	0.7	13.1	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH30	0.4-0.5	QC100_202240317	17/03/2024	ES2409702	Anzac Avenue	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC11	BH30	0.9-1	QC200-20240317	17/03/2024	1081737	Anzac Avenue	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC12	BH27	1.3-1.4	BH27_1.3-1.4	25/03/2024	ES2410544	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC12	BH27	2.3-2.4	BH27_2.3-2.4	25/03/2024	ES2410544	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC13	BH25	0.1-0.2	BH25_0.1-0.2	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	1.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC13	BH25	0.7-0.8	BH25_0.7-0.8	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	ACM-BH04	0.5-0.6	ACM_BH04_0.5-0.6	28/02/2024	ES2407037	Panonia Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	26/03/2024	ES2410587	Panonia Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	ACM-TP01	0.7-1.3	ACM-TP01_0.7-1.3m	26/03/2024	ES2410587	Panonia Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	18/12/2023	ES2344222	Afflux Excavation Area	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	18/12/2023	ES2344222	Afflux Excavation Area	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	1.1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	27/03/2024	ES2410544	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	A-TP07	0.9-1.3	A-TP07_0.9-1.3m	27/03/2024	ES2410544	South Tacoma Road	1.2	<0.5	<0.5	<0.5	0.6	<0.5	1.8	2.4	0.8	<0.5	0.8	-	0.7	0.7	2	<0.5	<0.5	<0.5	9.8	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	21/03/2024	ES2409869	South Tacoma Road	3.4	<0.5	<0.5	<0.5	0.6	<0.5	3.1	5.9	1.9	0.9	2.8	-	2.4	1.9	5.6	2	<0.5	1.6	28.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	22/03/2024	ES2409869	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	4/03/2024	ES2407037	Panonia Road	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	2	2.8	0.8	<0.5	0.9	-	0.9	0.8	2.2	0.6	<0.5	0.5	11.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC16	A-BH17	0.5-0.7	A-BH17_0.5-0.6	4/03/2024	ES2407462	River Road	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	0.5	0.6	0.5	1.6	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC16	BH39	0.6-0.7	BH39_0.6-0.7	18/03/2024	ES2409702	Pacific Highway Verge	0.6	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC16	BH39	1.2-1.3	BH39_1.2-1.3	18/03/2024	ES2409702	Pacific Highway Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC16	BH39	1.2-1.3	QC100_202240318	18/03/2024	ES2409702	Pacific Highway Verge	0.6	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	-	-	-	-	-	-	-	-	-	-	-	-
AEC16	R_TP03	0.55-1.3	R_TP03_0.55-1.30	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC16	R_TP03	1.3-2	R_TP03_1.30-2.00	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	<0.5	<0.5	<0.5	<1
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	<0.5	<0.5	<0.5	<1
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-	<0.5	<0.5	<0.5	<1
AEC17	HA58	0-0.2	HA58_0.0-0.2	18/03/2024	ES2409702	Pacific Highway	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	2	0.7	<0.5	1.1	-	0.9	0.8	1.9	0.8	<0.5	0.6	9.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	18/03/2024	ES2409702	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	18/03/2024	ES2409702	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-06	22/03/2024	ES2409765	Rail Cess	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	2.1	0.7	<0.5	1	-	1	0.7	1.9	0.6	<0.5	0.6	9.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC17	R-BH16A	0.4-0.6	QC100_20240322	22/03/2024	ES2409765	Rail Cess	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	2.5	0.9	0.6	1.3	-	1.2	1	2.4	0.8	<0.5	0.8	12.6	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	R-BH16A	0.4-0.6	QC200_20240322	22/03/2024	ES2409765	Rail Cess	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	2.2	0.7	<0.5	0.9	-	1	0.8	2	0.7	<0.5	0.7	10	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	R-BH16A	0.4-0.6	QC200_20240322 €	22/03/2024	1084238	Rail Cess	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	1	2.3	0.9	1.2	0.8	-	1	1	2.2	0.5	<0.5	0.6	12	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	30/11/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	3.3	1.1	0.6	1.7	-	1.4	1.2	2.9	1.2	<0.5	0.9	15.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM_TP16	0-0.2	ACM_TP16_0.0-0.2	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM_TP19	0.6-0.8	ACM_TP19_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19	0.6-0.8	QC101_20240408	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B4
Soil Analytical Results - PAHs and Phenols
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Polynuclear Aromatic Hydrocarbons																Phenolic Compounds											
							Benzo(a)pyrene TEQ calc (Half)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(b+j) & Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							40																	4000		240000										660
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																														
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-TP15	0.5-1	ACM-TP15_0.5-1.0m	26/03/2024	ES2410587	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	18/12/2023	ES2344222	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	18/12/2023	ES2344222	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	26/03/2024	ES2410587	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	26/03/2024	ES2410587	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	27/02/2024	ES2406391	South Tacoma Road	5.9	<0.5	1.5	<0.5	1	<0.5	0.7	3.8	2	1.7	4.7	-	4	2.1	4.4	5.1	0.6	3.7	35.3	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	22.7	8	3.1	4	14.3	10.3	61.6	56.2	14.4	6.2	17.4	-	16.2	12.4	48.9	12.7	1.5	9.4	297	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH06	0.8-0.9	BH06_0.8-0.9	8/04/2024	ES2411530	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	0.5	-	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	1.9	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH06	2-2.5	QC100_20240408	8/04/2024	ES2411530	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	8/04/2024	1087305	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	2	<0.5	<0.5	0.7	<0.5	<0.5	2.7	3.7	1.6	0.7	1.9	-	1.3	1.7	3	0.7	<0.5	0.6	18.6	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC21	BH28	0.3-0.4	QC100_20240326	26/03/2024	ES2410587	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	0.3-0.4	QC200_20240326	26/03/2024	1084484	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	19/03/2024	ES2409727	Apex Park	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH32	0.65-0.8	BH32_0.65-0.8	19/03/2024	ES2409727	Apex Park	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH33	0.13-0.3	BH33_0.13-0.3	19/03/2024	ES2409727	Apex Park	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH33	0.8-1	BH33_0.8-1.0	19/03/2024	ES2409727	Apex Park	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC23	BH35	0.3-0.4	BH35_0.3-0.4	22/03/2024	ES2409869	Pacific Highway	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	2.5	1.4	0.7	2	-	1.4	1.4	2.3	0.9	<0.5	0.8	14.1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC23	BH35	0.3-0.4	QC100_20240322	22/03/2024	ES2409869	Pacific Highway	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	2.5	1.1	0.7	1.7	-	1.4	1.2	2.4	1	<0.5	0.8	13.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC23	BH35	0.3-0.4	QC200_20240322	22/03/2024	ES2409869	Pacific Highway	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.8	0.9	0.6	1.6	-	1.1	1	1.7	0.8	<0.5	0.7	10.7	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC23	BH35	0.3-0.4	QC200_20240322	22/03/2024	1084489	Pacific Highway	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.7	0.8	1.1	0.8	-	0.9	1.2	1.8	<0.5	<0.5	<0.5	8.8	-	1.2	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1
AEC23	BH35	0.8-0.9	BH35_0.8-0.9	22/03/2024	ES2409869	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH14	1-1.2	A-BH14_1.0-1.2	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH15	0.1-0.2	A_BH15_0.1-0.2	27/11/2023	ES2341301	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	A-BH15	0.1-0.2	R_BH19_0.1-0.2	27/11/2023	ES2341301	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH15	0.3-0.4	A_BH15_0.3-0.4	27/11/2023	ES2341301	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH15	1.5-1.6	R_BH19_1.5-1.6	28/11/2023	ES2341301	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	A-BH16A	0.5-0.6	A-BH16A_0.5-0.6	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	A-BH16A	0.5-0.6	QC100_011223	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	A-BH16A	0.5-0.6	QC200_011223	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	A-BH16A	1.5-1.6	A-BH16A_1.5-1.6	1/12/2023	ES2341790	Rail Cess	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP06	0.3-0.5	R_TP06_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	1	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.2	<0.5	<0.5	0.6	-	0.6	<0.5	1.2	<0.5	<0.5	<0.5	4.1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	R_TP07	0-0.1	QC100_20240321	21/03/2024	ES2409869	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	0.5	-	<0.5	0.6	1.2	<0.5	<0.5	<0.5	3.6	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP07	0-0.1	QC200_20240321	21/03/2024	ES2409869	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP07	0-0.1	QC200_20240321	21/03/2024	1084489	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.2	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1
AEC24	R_TP07	0-0.1	R_TP07_0-0.1	21/03/2024	ES2409869	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	1.8	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP07	0.3-0.5	R_TP07_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	1.4	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	19/03/2024	ES2409727	Apex Park	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC24	R_TP12	0.1-0.2	R_TP12_0.1-0.2	3/04/2024	ES2411530	Pacific Highway	3.2	<0.5	<0.5	<0.5	0.6	<0.5	1.3	5.6	2.3	0.9	2.7	-	2.2	2	4.6	1.6	<0.5	1.2	25	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP12	1-1.1	R_TP12_1.0-1.1	3/04/2024	ES2411530	Pacific Highway	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC6	R-BH13A	0.6-0.7	R-BH13A_0.6-0.7	26/02/2024	ES2406391	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC6	R-BH13A	1.5-1.6	R-BH13A_1.5-1.6	26/02/2024	ES2406391	South Tacoma Road	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	5/12/2023	ES2343534	Wyong Station Carpark West	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	2.2	0.7	0.5	0.9	-	0.9	0.8	2	0.5	<0.5	<0.5	9.2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	7/12/2023	ES2344617	Wyong Station Carpark East	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	-	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	1.1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	7/12/2023	ES2344617	Wyong Station Carpark East	16.7	2.5	<0.5	11.6	18.1	11.1	43.3	31.2	17.3	5.1	12.8	-	11.1	15.5	34.9	4.2	1.5	3.6	224	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC7	ACM-BH05(A)	0.2-0.2	ACM_BH05(A)_0.2	19/03/2024	ES2409727	Wyong Station Carpark East	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Table B4
Soil Analytical Results - PAHs and Phenols
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Polynuclear Aromatic Hydrocarbons																Phenolic Compounds											
								Benzo(a)pyrene TEQ calc (Half)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(b+j) & Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								40																	4000		240000										660
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																														
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A) 0.2-0.3	19/03/2024	ES2409727	Wyong Train Station		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2
AEC7	R-CO01(A)	1.2-1.3	R-CO01(A)_1.2-1.3	19/03/2024	ES2409727	Wyong Train Station		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	19/03/2024	ES2409727	Commuter Carpark		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B5
Soil Analytical Results - OCPs, OPPs and PCBs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

							PCBs	Organophosphorus Pesticides (OP)																					
							Polychlorinated Biphenyls	Azinphos Methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimphos-ethyl	Prothiofos
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.2	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil							7					2000																
PFAS NEMP 2020 Industrial/ commercial (HIL D)																												
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)							**0.94**	**250**			**57**	**82**	**820**		**57**	**7.9**	**180**	**41**	**21**		**1600**		**490**	**21**				
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																						
AEC15	ACM-BH04	0.5-0.6	ACM_BH04_0.5-0.6	28/02/2024	ES2407037	Panonia Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	ACM-BH04	1.4-1.5	ACM_BH04_1.4-1.5	28/02/2024	ES2407037	Panonia Road	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	26/03/2024	ES2410587	Panonia Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	ACM-TP01	0.7-1.3	ACM-TP01_0.7-1.3m	26/03/2024	ES2410587	Panonia Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	18/12/2023	ES2344222	Afflux Excavation Area	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	18/12/2023	ES2344222	Afflux Excavation Area	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	27/03/2024	ES2410544	South Tacoma Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	A-TP07	0.9-1.3	A-TP07_0.9-1.3m	27/03/2024	ES2410544	South Tacoma Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	21/03/2024	ES2409869	South Tacoma Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	22/03/2024	ES2409869	Pacific Highway Grass Verge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	4/03/2024	ES2407037	Panonia Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC16	A-BH17	0.5-0.7	A-BH17_0.5-0.6	4/03/2024	ES2407462	River Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	0.1	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	<0.1	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	<0.1	-	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	HA58	0-0.2	HA58_0.0-0.2	18/03/2024	ES2409702	Pacific Highway	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	18/03/2024	ES2409702	Pacific Highway	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	18/03/2024	ES2409702	Pacific Highway	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-06	22/03/2024	ES2409765	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	30/11/2023	ES2341790	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	18/12/2023	ES2344222	McPherson Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	18/12/2023	ES2344222	McPherson Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	26/03/2024	ES2410587	McPherson Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	26/03/2024	ES2410587	McPherson Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	27/02/2024	ES2406391	South Tacoma Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	1/12/2023	ES2341790	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	A-BH14	1-1.2	A-BH14_1.0-1.2	1/12/2023	ES2341790	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	A-BH15	0.1-0.2	R_BH19_0.1-0.2	27/11/2023	ES2341301	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	A-BH15	0.3-0.4	A_BH15_0.3-0.4	27/11/2023	ES2341301	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	A-BH16A	0.5-0.6	A-BH16A_0.5-0.6	1/12/2023	ES2341790	Rail Cess	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	R_TP06	0.3-0.5	R_TP06_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	R_TP07	0.3-0.5	R_TP07_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	19/03/2024	ES2409727	Apex Park	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC24	R_TP12	1-1.1	R_TP12_1.0-1.1	3/04/2024	ES2411530	Pacific Highway	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC6	R-BH13A	0.6-0.7	R-BH13A_0.6-0.7	26/02/2024	ES2406391	South Tacoma Road	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC6	R-BH13A	1.4-1.5	R-BH13A_1.4-1.5	25/03/2024	ES2410544	South Tacoma Road	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	5/12/2023	ES2343534	Wyong Station Carpark West	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	7/12/2023	ES2344617	Wyong Station Carpark East	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	7/12/2023	ES2344617	Wyong Station Carpark East	<0.2	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<1	<1	<1	<0.25	<0.25
AEC7	ACM-BH05(A)	0.2-0.2	ACM_BH05(A)_0.2	19/03/2024	ES2409727	Wyong Station Carpark East	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R_BH28(A)	0.8-0.9	R_BH28(A)_0.8-0.9	19/03/2024	ES2409727	Rose Street Roundabout	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-BH26A	0.4-0.5	R-BH26A_0.4-0.5	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-BH27A	0.7-0.8	R-BH27A_0.7-0.8	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	7/12/2023	ES2344223	Grass Area Rose Street Overbridge	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-BH34	1-1.2	R_BH34_1.0-1.2	4/12/2023	ES2343534	Wyong Station Carpark East	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-BH34	2-2.2	R_BH34_2.0-2.2	4/12/2023	ES2343534	Wyong Station Carpark East	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A) 0.2-0.3	19/03/2024	ES2409727	Wyong Train Station	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	19/03/2024	ES2409727	Commuter Carpark	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.05	<0.05

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B5
Soil Analytical Results - OCPs, OPPs and PCBs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Organochlorine Pesticides (OC)																							
								Aldrin	Dieldrin	Aldrin + Dieldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	cis-Chlordane	trans-Chlordane	Chlordane	DDD	DDE	DDT	DDT+DDE+DDD	Endosulfan	Endosulfan 1	Endosulfan 2	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor epoxide	Hexachlorobenzene (HCB)	Methoxychlor	Isodrin
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR								0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										45							530				3600	2000				100			50		80	2500	
PFAS NEMP 2020 Industrial/ commercial (HIL D)																																	
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)								**0.18**	**0.14**		**0.36**	**1.3**		**2.5**	**50**	**50**		**9.6**	**9.3**	**8.5**		**700**			**490**	**25**			**0.63**	**0.33**	**0.96**	**410**	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																											
AEC15	ACM-BH04	0.5-0.6	ACM_BH04_0.5-0.6	28/02/2024	ES2407037	Panonia Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	ACM-BH04	1.4-1.5	ACM_BH04_1.4-1.5	28/02/2024	ES2407037	Panonia Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	26/03/2024	ES2410587	Panonia Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	ACM-TP01	0.7-1.3	ACM-TP01_0.7-1.3m	26/03/2024	ES2410587	Panonia Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	18/12/2023	ES2344222	Afflux Excavation Area		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	18/12/2023	ES2344222	Afflux Excavation Area		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	27/03/2024	ES2410544	South Tacoma Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	A-TP07	0.9-1.3	A-TP07_0.9-1.3m	27/03/2024	ES2410544	South Tacoma Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	21/03/2024	ES2409869	South Tacoma Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	22/03/2024	ES2409869	Pacific Highway Grass Verge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	4/03/2024	ES2407037	Panonia Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC16	A-BH17	0.5-0.7	A-BH17_0.5-0.6	4/03/2024	ES2407462	River Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot		<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.5
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot		<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.5
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot		<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.5
AEC17	HA58	0-0.2	HA58_0.0-0.2	18/03/2024	ES2409702	Pacific Highway		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	18/03/2024	ES2409702	Pacific Highway		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	18/03/2024	ES2409702	Pacific Highway		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-06	22/03/2024	ES2409765	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	30/11/2023	ES2341790	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	18/12/2023	ES2344222	McPherson Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	18/12/2023	ES2344222	McPherson Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	26/03/2024	ES2410587	McPherson Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	26/03/2024	ES2410587	McPherson Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	27/02/2024	ES2406391	South Tacoma Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	1/12/2023	ES2341790	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	A-BH14	1-1.2	A-BH14_1.0-1.2	1/12/2023	ES2341790	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	A-BH15	0.1-0.2	R_BH19_0.1-0.2	27/11/2023	ES2341301	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	A-BH15	0.3-0.4	A_BH15_0.3-0.4	27/11/2023	ES2341301	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	A-BH16A	0.5-0.6	A-BH16A_0.5-0.6	1/12/2023	ES2341790	Rail Cess		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	R_TP06	0.3-0.5	R_TP06_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	R_TP07	0.3-0.5	R_TP07_0.3-0.5	21/03/2024	ES2409869	Pacific Highway Grass Verge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	19/03/2024	ES2409727	Apex Park		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC24	R_TP12	1-1.1	R_TP12_1.0-1.1	3/04/2024	ES2411530	Pacific Highway		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC6	R-BH13A	0.6-0.7	R-BH13A_0.6-0.7	26/02/2024	ES2406391	South Tacoma Road		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC6	R-BH13A	1.4-1.5	R-BH13A_1.4-1.5	25/03/2024	ES2410544	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	5/12/2023	ES2343534	Wyong Station Carpark West		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	7/12/2023	ES2344617	Wyong Station Carpark East		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	7/12/2023	ES2344617	Wyong Station Carpark East		**<0.25**	**<0.25**	<0.08	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.08	<0.25	<0.25	<1	<0.08	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<1	-
AEC7	ACM-BH05(A)	0.2-0.2	ACM_BH05(A)_0.2	19/03/2024	ES2409727	Wyong Station Carpark East		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R_BH28(A)	0.8-0.9	R_BH28(A)_0.8-0.9	19/03/2024	ES2409727	Rose Street Roundabout		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-BH26A	0.4-0.5	R-BH26A_0.4-0.5	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-BH27A	0.7-0.8	R-BH27A_0.7-0.8	8/12/2023	ES2343795	ST Yard - Rose Street Overbridge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	7/12/2023	ES2344223	Grass Area Rose Street Overbridge		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-BH34	1-1.2	R_BH34_1.0-1.2	4/12/2023	ES2343534	Wyong Station Carpark East		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-BH34	2-2.2	R_BH34_2.0-2.2	4/12/2023	ES2343534	Wyong Station Carpark East		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A) 0.2-0.3	19/03/2024	ES2409727	Wyong Train Station		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	19/03/2024	ES2409727	Commuter Carpark		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B6
Soil Analytical Results - PFAS
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorononanesulfonic Acid (PFNS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.005	0.0002	0.0002	0.0002	0.0002	0.0002	0.005	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005
PFAS NEMP 2020 Industrial/ commercial (HIL D)																			50								
AEC	**Location**	**Depth (m)**	**Field_ID**	**SampleCode**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																				
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	ES2409806004	24/03/2024	ES2409806	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	QC100_20240324	ES2409806008	24/03/2024	ES2409806	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	QC200_20240324	ES2409806009	24/03/2024	ES2409806	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	QC200_20240324	S24-Ap0010501	24/03/2024	1084494	Pacific Highway	-	-	-	<0.005	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	ES2409702001	17/03/2024	ES2409702	Anzac Avenue	-	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC11	BH30	0.4-0.5	QC100_202240317	ES2409702004	17/03/2024	ES2409702	Anzac Avenue	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC11	BH30	0.9-1	BH30_0.9-1.0	ES2409702002	17/03/2024	ES2409702	Anzac Avenue	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC11	BH30	0.9-1	QC200-20240317	S24-Ma0062673	17/03/2024	1081737	Anzac Avenue	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	ES2343854013	13/12/2023	ES2343854	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	ES2343854014	13/12/2023	ES2343854	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	ES2411748002	8/04/2024	ES2411748	Pacific Highway	-	<0.0002	-	<0.0002	-	0.0003	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	ES2411748003	8/04/2024	ES2411748	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19A_1.6-1.7	ES2411748009	8/04/2024	ES2411748	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19A_2.8-2.9	ES2411748010	8/04/2024	ES2411748	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC100_20240408	ES2411748011	8/04/2024	ES2411748	Pacific Highway	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC200_20240408	S24-Ap0033382	8/04/2024	1087307	Pacific Highway	-	-	-	<0.005	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	ES2344603010	20/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	ES2344603011	20/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	ES2411530002	7/04/2024	ES2411530	McPherson Road	-	<0.0005	-	<0.0005	-	<0.0005	-	-	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC100_20240407	ES2411530004	7/04/2024	ES2411530	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC200_20240407	S24-Ap0033366	8/04/2024	1087305	McPherson Road	-	-	-	<0.005	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	ES2411530003	7/04/2024	ES2411530	McPherson Road	-	<0.0005	-	<0.0005	-	<0.0005	-	-	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	ES2344603005	20/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	ES2344603007	20/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	ES2406391010	27/02/2024	ES2406391	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH04A	0.1-0.25	BH04A_0.1-0.25	ES2408158012	8/03/2024	ES2408158	South Tacoma Road	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	ES2408158010	8/03/2024	ES2408158	South Tacoma Road	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	ES2408158011	8/03/2024	ES2408158	South Tacoma Road	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC2,3 & 4	BH04A	2.4-2.5	BH04A_2.4-2.5	ES2408158013	8/03/2024	ES2408158	South Tacoma Road	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005
AEC2,3 & 4	BH06	0.8-0.9	BH06_0.8-0.9	ES2411530007	8/04/2024	ES2411530	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	ES2411530008	8/04/2024	ES2411530	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	QC100_20240408	ES2411530011	8/04/2024	ES2411530	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	S24-Ap0033365	8/04/2024	1087305	South Tacoma Road	-	-	-	<0.005	-	<0.005	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	ES2411530010	8/04/2024	ES2411530	South Tacoma Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	ES2343853007	14/12/2023	ES2343853	McPherson Road	-	<0.0002	-	<0.0002	-	0.0004	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	ES2343853009	14/12/2023	ES2343853	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	ES2344603014	21/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	0.0003	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	ES2344603016	21/12/2023	ES2344603	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	ES2344222014	18/12/2023	ES2344222	McPherson Road	-	<0.0002	-	<0.0002	-	0.0002	-	-	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	ES2344222015	17/12/2023	ES2344222	McPherson Road	-	<0.0002	-	<0.0002	-	<0.0002	-	-	<0.001	<0.0002	0.0003	<0.0002	<0.0002	-	-	-	-	-	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B6
Soil Analytical Results - PFAS
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

								N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum (PFHxS + PFOS)	Sum of PFAS	Sum of WA DWER PFAS (n=10)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	Sum of US EPA PFAS (PFOS + PFOA)
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR								0.0005	0.0005	0.0005	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0002	0.005	0.005
PFAS NEMP 2020 Industrial/ commercial (HIL D)																	20				
AEC	**Location**	**Depth (m)**	**Field_ID**	**SampleCode**	**Sample Date**	**Lab Report**	**Monitoring_Zone**														
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	ES2409806004	24/03/2024	ES2409806	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC11	BH26	1.5-1.6	QC100_20240324	ES2409806008	24/03/2024	ES2409806	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC11	BH26	1.5-1.6	QC200_20240324	ES2409806009	24/03/2024	ES2409806	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC11	BH26	1.5-1.6	QC200_20240324	S24-Ap0010501	24/03/2024	1084494	Pacific Highway	-	-	-	-	-	-	<0.01	-	-	<0.005	-	-	<0.005	<0.005
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	ES2409702001	17/03/2024	ES2409702	Anzac Avenue	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	0.0004	0.0004	-	-
AEC11	BH30	0.4-0.5	QC100_202240317	ES2409702004	17/03/2024	ES2409702	Anzac Avenue	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	ES2409702002	17/03/2024	ES2409702	Anzac Avenue	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC11	BH30	0.9-1	QC200-20240317	S24-Ma0062673	17/03/2024	1081737	Anzac Avenue	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.05	<0.01	<0.005	<0.005
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	ES2343854013	13/12/2023	ES2343854	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	ES2343854014	13/12/2023	ES2343854	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	ES2411748002	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	-	0.0003	-	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	ES2411748003	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19A_1.6-1.7	ES2411748009	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19A_2.8-2.9	ES2411748010	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC100_20240408	ES2411748011	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	QC200_20240408	S24-Ap0033382	8/04/2024	1087307	Pacific Highway	-	-	-	-	-	-	<0.01	-	-	<0.005	-	-	<0.005	<0.005
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	ES2344603010	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	ES2344603011	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	ES2411530002	7/04/2024	ES2411530	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC100_20240407	ES2411530004	7/04/2024	ES2411530	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC200_20240407	S24-Ap0033366	8/04/2024	1087305	McPherson Road	-	-	-	-	-	-	<0.01	-	-	<0.005	-	-	<0.005	<0.005
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	ES2411530003	7/04/2024	ES2411530	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	-	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	ES2344603005	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	-	0.0002	-	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	ES2344603007	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH04	0.2-0.3	BH04_0.2-0.3	ES2406391010	27/02/2024	ES2406391	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH04A	0.1-0.25	BH04A_0.1-0.25	ES2408158012	8/03/2024	ES2408158	South Tacoma Road	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	ES2408158010	8/03/2024	ES2408158	South Tacoma Road	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	ES2408158011	8/03/2024	ES2408158	South Tacoma Road	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC2,3 & 4	BH04A	2.4-2.5	BH04A_2.4-2.5	ES2408158013	8/03/2024	ES2408158	South Tacoma Road	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	-	-
AEC2,3 & 4	BH06	0.8-0.9	BH06_0.8-0.9	ES2411530007	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	ES2411530008	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH06	2-2.5	QC100_20240408	ES2411530011	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	S24-Ap0033365	8/04/2024	1087305	South Tacoma Road	-	-	-	-	-	-	<0.01	-	-	<0.005	-	-	<0.005	<0.005
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	ES2411530010	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	ES2343853007	14/12/2023	ES2343853	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	-	0.0004	-	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	ES2343853009	14/12/2023	ES2343853	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	ES2344603014	21/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0003	-	0.0003	-	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	ES2344603016	21/12/2023	ES2344603	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	<0.0002	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	ES2344222014	18/12/2023	ES2344222	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	0.0002	-	0.0002	-	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	ES2344222015	17/12/2023	ES2344222	McPherson Road	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	-	0.0003	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B7
Soil Analytical Results - Asbestos
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Asbestos (<7mm AF/FA)	Asbestos (ACM >7mm) Estimation	APPROVED IDENTIFIER:	Asbestos detected	Asbestos Type	Asbestos Containing Material	Asbestos Containing Material (as 15% Asbestos in ACM)	Weight Used for % Calculation
								g	g	-	g/kg	-	g	%	kg
LOR								0.0004	0.0004		0.1		0.1	0.01	0.0001
AEC	**Location_Code**	**Sample_D**	**Field_ID**	**SampleCode**	**Sampled_Date_Ti**	**Lab_Report_Numbe**	**Monitoring_Zone**								
AEC11	BH26	0.4-0.5	BH26_0.4-0.5	ES2409806001	24/03/2024	ES2409806	Pacific Highway	-	-	1#3	No	1	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	ES2409702001	17/03/2024	ES2409702	Anzac Avenue	-	-	1#2	No	1	-	-	-
AEC15	ACM-BH04	0.1-0.2	ACM_BH04_0.1-0.2	ES2407037004	28/02/2024	ES2407037	Panonia Road	-	-	1#3	No	1	-	-	-
AEC15	ACM-TP01	0.5-0.7	ACM-TP01_0.5-0.7m	ES2410587014	26/03/2024	ES2410587	Panonia Road	-	-	1#3	No	1	-	-	-
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	ES2344222001	18/12/2023	ES2344222	Afflux Excavation Area	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.381
AEC15	A-TP07	0.05-0.3	A-TP07_0.05-0.3m	ES2410544033	27/03/2024	ES2410544	South Tacoma Road	-	-	1#5	No	1	-	-	-
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	ES2409869022	21/03/2024	ES2409869	South Tacoma Road	-	-	1#3	No	1	-	-	-
AEC15	R_BH10	1.7-1.8	R_BH10_1.7-1.8	ES2409869032	22/03/2024	ES2409869	Pacific Highway Grass Verge	-	-	1#3	No	1	-	-	-
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	ES2407037008	4/03/2024	ES2407037	Panonia Road	-	-	1#3	No	1	-	-	-
AEC16	BH39	0.6-0.7	BH39_0.6-0.7	ES2409702006	18/03/2024	ES2409702	Pacific Highway Verge	-	-	1#2	No	1	-	-	-
AEC16	R_TP03	0-0.12	R_TP03_0.00-0.12	ES2409869001	20/03/2024	ES2409869	Pacific Highway/River Road Grass Area	-	-	1#3	No	1	-	-	-
AEC17	HA58	0-0.2	HA58_0.0-0.2	ES2409702013	18/03/2024	ES2409702	Pacific Highway	-	-	1#2	No	1	-	-	-
AEC17	HA59	0.6-0.7	HA59_0.6-0.7	ES2409702016	18/03/2024	ES2409702	Pacific Highway	-	-	1#2	No	1	-	-	-
AEC17	HA60	0.7-0.8	HA60_0.7-0.8	ES2409702019	18/03/2024	ES2409702	Pacific Highway	-	-	1#2	No	1	-	-	-
AEC17	R-BH16A	0.4-0.6	20240322-R-BH16A_0.4-	ES2409765011	22/03/2024	ES2409765	Rail Cess	-	-	1#5	No	1	-	-	-
AEC17	R-BH20B	0.1-0.2	R-BH20B_0.1-0.2	ES2341790015	30/11/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#1	No	1	<0.1	<0.01	0.559
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	ES2341790016	30/11/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#1	No	1	<0.1	<0.01	0.418
AEC18	A-BH06	0.05-0.4	A-BH06_0.05-0.4	ES2344549011	15/12/2023	ES2344549	Railway Square	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.21
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	ES2344549006	15/12/2023	ES2344549	Railway Square	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.194
AEC18	BH41	0.6-0.7	BH41_0.6-0.7	ES2408075002	12/03/2024	ES2408075	Pacific Highway Verge	-	-	1#5	No	1	-	-	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	ES2344549001	15/12/2023	ES2344549	Railway Square	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.286
AEC19	BH42	0.2	BH42_0.2	ES2408075005	11/03/2024	ES2408075	Howarth Street	-	-	1#5	No	1	-	-	-
AEC2,3 & 4	ACM_TP16	0-0.2	ACM_TP16_0.0-0.2	ES2411748001	8/04/2024	ES2411748	Pacific Highway	-	-	1#1	No	1	-	-	-
AEC2,3 & 4	ACM_TP19	1.6-1.7	ACM_TP19_1.6-1.7	ES2411748009	8/04/2024	ES2411748	Pacific Highway	-	-	1#1	No	1	-	-	-
AEC2,3 & 4	ACM-BH12	0-0.2	ACM_BH12_0.0-0.2	ES2344222016	15/12/2023	ES2344222	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.523
AEC2,3 & 4	ACM-BH12A	0-0.2	ACM-BH12A_0.0-0.2	ES2344603009	20/12/2023	ES2344603	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.468
AEC2,3 & 4	BH05	0.4-0.5	BH05_0.4-0.5	ES2411530001	7/04/2024	ES2411530	McPherson Road	-	-	1#3	No	1	-	-	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	ES2411748015	8/04/2024	ES2411748	Pacific Highway	-	-	1#1	No	1	-	-	-
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	ES2344222005	18/12/2023	ES2344222	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.453
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	ES2344222006	18/12/2023	ES2344222	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.482
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	ES2344603005	20/12/2023	ES2344603	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.507
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	ES2410587008	26/03/2024	ES2410587	McPherson Road	-	-	1#3	No	1	-	-	-
AEC2,3 & 4	BH04A	0.1-0.25	BH04A_0.1-0.25	ES2408158012	8/03/2024	ES2408158	South Tacoma Road	-	-	1#5	No	-	-	-	-
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	ES2408158010	8/03/2024	ES2408158	South Tacoma Road	-	-	1#5	No	-	-	-	-
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	ES2408158011	8/03/2024	ES2408158	South Tacoma Road	-	-	1#5	No	-	-	-	-
AEC2,3 & 4	BH04A	2.4-2.5	BH04A_2.4-2.5	ES2408158013	8/03/2024	ES2408158	South Tacoma Road	-	-	1#5	No	-	-	-	-
AEC2,3 & 4	BH06	0.4-0.5	BH06_0.4-0.5	ES2411530006	7/04/2024	ES2411530	South Tacoma Road	-	-	1#3	No	1	-	-	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	ES2343853007	14/12/2023	ES2343853	McPherson Road	-	-	1#3	No	1	-	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	ES2344603014	21/12/2023	ES2344603	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.311
AEC2,3 & 4	R-BH36	0-0.2	R_BH36_0.0-0.2	ES2344222013	18/12/2023	ES2344222	McPherson Road	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.506
AEC26	ACM-1		ACM-1	ES2343854024	12/12/2023	ES2343854	South Tacoma Road	-	-	1#3	No	1	-	-	-
AEC26	ACM-2		ACM-2	ES2343854025	12/12/2023	ES2343854	South Tacoma Road	-	-	1#3	Yes	1#4	-	-	-
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	ES2410587023	26/03/2024	ES2410587	Pacific Highway	-	-	1#3	No	1	-	-	-
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	ES2410587028	26/03/2024	ES2410587	Pacific Highway	-	-	1#3	No	1	-	-	-
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	ES2409727020	19/03/2024	ES2409727	Apex Park	-	-	1#5	No	1	-	-	-
AEC22	BH33	0.13-0.3	BH33_0.13-0.3	ES2409727025	19/03/2024	ES2409727	Apex Park	-	-	1#5	No	1	-	-	-
AEC23	BH35	0.8-0.9	BH35_0.8-0.9	ES2409869027	22/03/2024	ES2409869	Pacific Highway	-	-	1#3	No	1	-	-	-
AEC24	A-BH13	0-0.2	A-BH13_0.0-0.2	ES2341790001	1/12/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#1	No	1	<0.1	<0.01	0.532
AEC24	A-BH13	1-1.2	A-BH13_1.0-1.20	ES2341790002	1/12/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#1	No	1	<0.1	<0.01	0.467
AEC24	A-BH14	0-0.1	A-BH14_0.0-0.1	ES2341790008	1/12/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#1	No	1	<0.1	<0.01	0.401
AEC24	A-BH15	0.1-0.2	A_BH15_0.1-0.2	ES2341301001	27/11/2023	ES2341301	Rail Cess	-	-	1#1	No	1	-	-	-
AEC24	A-BH16A	0.1-0.2	A-BH16A_0.1-0.2	ES2341790022	1/12/2023	ES2341790	Rail Cess	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.308

Project: 60709736
Checked: KM
Date:19/09/2024

Table B7
Soil Analytical Results - Asbestos
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Asbestos (<7mm AF/FA)	Asbestos (ACM >7mm) Estimation	APPROVED IDENTIFIER:	Asbestos detected	Asbestos Type	Asbestos Containing Material	Asbestos Containing Material (as 15% Asbestos in ACM)	Weight Used for % Calculation
								g	g	-	g/kg	-	g	%	kg
LOR								0.0004	0.0004		0.1		0.1	0.01	0.0001
AEC	**Location_Code**	**Sample_D**	**Field_ID**	**SampleCode**	**Sampled_Date_Ti**	**Lab_Report_Numbe**	**Monitoring_Zone**								
AEC24	R_TP06	0-0.1	R_TP06_0.0-0.1	ES2409869005	21/03/2024	ES2409869	Pacific Highway Grass Verge	-	-	1#3	No	1	-	-	-
AEC24	R_TP07	0-0.1	R_TP07_0-0.1	ES2409869008	21/03/2024	ES2409869	Pacific Highway Grass Verge	-	-	1#3	No	1	-	-	-
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	ES2409727030	19/03/2024	ES2409727	Apex Park	-	-	1#3	No	1	-	-	-
AEC24	R_TP12	0.1-0.2	R_TP12_0.1-0.2	ES2411530014	3/04/2024	ES2411530	Pacific Highway	-	-	1#3	No	1	-	-	-
AEC5	R-BH37	0-0.2	20240322-R-BH37_0-0.2	ES2409765009	22/03/2024	ES2409765	McPherson Road	-	-	1#3	No	1	-	-	-
AEC7	ACM-BH05	0.1-0.2	ACM-BH05_0.1-0.2	ES2344617001	7/12/2023	ES2344617	Wyong Station Carpark East	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.59
AEC7	ACM-BH05(A)	0.45-0.45	ACM_BH05(A)_0.45	ES2409727010	19/03/2024	ES2409727	Wyong Station Carpark East	-	-	1#5	No	1	-	-	-
AEC7	ACM-TP11	0.3-0.4	ACM-TP11_0.3-0.4m	ES2410544014	25/03/2024	ES2410544	Rose Street	-	-	1#5	No	1	-	-	-
AEC7	HA56		HA56_Mulch	ES2409702009	18/03/2024	ES2409702	Wyong Train Station	-	-	1#2	No	1	-	-	-
AEC7	HA57		HA57_Mulch	ES2409702011	18/03/2024	ES2409702	Wyong Train Station	-	-	1#2	No	1	-	-	-
AEC7	R_BH28(A)	0.8-0.9	R_BH28(A)_0.8-0.9	ES2409727003	19/03/2024	ES2409727	Rose Street Roundabout	-	-	1#5	No	1	-	-	-
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	ES2344223001	7/12/2023	ES2344223	Grass Area Rose Street Overbridge	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.318
AEC7	R-BH34	0.1-0.2	R_BH34_0.1-0.2	ES2343534001	4/12/2023	ES2343534	Wyong Station Carpark East	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.541
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A) 0.2-0.3	ES2409727006	19/03/2024	ES2409727	Wyong Train Station	-	-	1#5	No	1	-	-	-
AEC8	ACM-TP09	0.035-0.1	ACM-TP09_0.035-0.1	ES2343854007	13/12/2023	ES2343854	Commuter Carpark	-	-	1#3	No	1	-	-	-
AEC8	A-TP09	0.35-0.7	A-TP09_0.35-0.7	ES2410544010	25/03/2024	ES2410544	Rose Street	-	-	1#5	No	1	-	-	-
AEC9	ACM-BH09	0.6-0.7	ACM-BH09_0.6-0.7	ES2402822001	6/12/2023	ES2402822	Commuter Carpark	-	-	1#3	No	1	-	-	-
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	ES2409727011	19/03/2024	ES2409727	Commuter Carpark	-	-	1#5	No	1	-	-	-
AEC9	A-TP13	0-0.2	A-TP13_0.0-0.2	ES2344603001	19/12/2023	ES2344603	Howarth Street	<0.0004	<0.0004	1#3	No	1	<0.1	<0.01	0.326
AEC9	R-BH30	0-0.2	R-BH30_0.0-0.2_202312	ES2343854001	12/12/2023	ES2343854	Howarth Street - North	-	-	1#3	No	1	-	-	-

Notes
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Data Comments:
#1 J. WILLIAMS
#2 J.WILLIAMS
#3 B.SCHRADER
#4 Ch + Am
#5 J. PAGE
#6 Yes
#7 No

Project: 60709736
Checked: KM
Date:19/09/2024

Table B8
Soil Analytical Results - VOCs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Halogenated Aromatic Compounds												
							Benzyl chloride	Bromobenzene	Chlorobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2,3,4-Tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,4,5-Tetrachlorobenzene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,3,5-Trichlorobenzene
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			
PFAS NEMP 2020 Industrial/ commercial (HIL D)																			
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)							**4.8**	**180**	**130**	**2300**	**2300**	**930**		**11**			**3.5**	**93**	**26**	
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**														
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	-
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	-
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	-	<0.5	-	<0.5	-
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19_1.6-1.7	8/04/2024	ES2411748	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19_2.8-2.9	8/04/2024	ES2411748	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM_BH12A_1.0-1.2	20/12/2023	ES2344749	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	7/04/2024	ES2411530	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B8
Soil Analytical Results - VOCs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Halogenated Aliphatic Compounds																									
							Dichlorodifluoromethane (Freon 12)	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane (Freon 11)	1,1-Dichloroethene	Iodomethane	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-Trichloroethane	1,3-Dichloropropane	Tetrachloroethene	1,1,1,2-Tetrachloroethane	trans-1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Dichloromethane	Pentachloroethane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							5	5	4	5	5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																																				
PFAS NEMP 2020 Industrial/ commercial (HIL D)																																				
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)							**37**	**46**	**1.7**	**3**	**2300**	**35000**	**100**		**16**	**37**	**30**	**3600**		**2.9**	**2**	**1.9**	**9.9**	**0.63**	**2300**	**39**	**8.8**	**0.032**	**0.032**	**2.7**	**0.11**	**320**	**36**	**0.064**	**5.3**
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																														
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	-	-	**<4**	-	-	-	<0.5	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	-	-
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	-	-	**<4**	-	-	-	<0.5	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	-	-
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	-	-	**<4**	-	-	-	<0.5	-	-	-	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	-	-	<0.5	-	<0.5	-	-	-
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19_1.6-1.7	8/04/2024	ES2411748	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19_2.8-2.9	8/04/2024	ES2411748	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM_BH12A_1.0-1.2	20/12/2023	ES2344749	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	7/04/2024	ES2411530	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	<5	<5	**<5**	**<5**	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**<0.5**	**<0.5**	<0.5	**<0.5**	-	<0.5	**<0.5**	<0.5

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B8
Soil Analytical Results - VOCs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

							Trihalomethanes				Fumigants					Oxygenated Compounds				Phenoxyacetic Acid Herbicides				Herbicides				
							Bromodichloromethane	Dibromochloromethane	Tribromomethane (Bromoform)	Trichloromethane (Chloroform)	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	2,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)	2,4,5-TP (Silvex)	Fluroxypyr	Picloram	Triclopyr	2,4,5-Trichlorophenoxy acetic acid	2,4-Dichlorophenoxy acetic acid	Di(2-ethylhexyl)adipate	Carbon disulfide	Bis(2-ethylhexyl)phthalate
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	5	5	0.02	0.02	0.02	0.02	0.02	0.02	0.5	0.5	5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																						35000		5000	9000			
PFAS NEMP 2020 Industrial/ commercial (HIL D)																												
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)							**1.3**	**39**	**86**	**1.4**	**0.16**	**6.6**				**380**	**19000**	**130**	**14000**	**660**		**5700**		**820**	**960**	**1900**	**350**	**160**
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																						
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	-	-	-	<0.5	-	-	-	-	-	-	<5	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	-	<5
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	-	-	-	<0.5	-	-	-	-	-	-	<5	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	-	<5
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	-	-	-	<0.5	-	-	-	-	-	-	<5	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	-	<5
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	<5	<5	<5	<5	-	-	-	-	-	-	-	<0.5	-
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	<5	<5	<5	<5	-	-	-	-	-	-	-	<0.5	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19_1.6-1.7	8/04/2024	ES2411748	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19_2.8-2.9	8/04/2024	ES2411748	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM_BH12A_1.0-1.2	20/12/2023	ES2344749	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	7/04/2024	ES2411530	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	<0.5	<0.5	<0.5	<0.5	**<0.5**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B8
Soil Analytical Results - VOCs
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

							Nitroaromatics and Ketones			Monocyclic Aromatic Hydrocarbons										Chlorinated Hydrocarbons				
							2,4-Dinitrotoluene	Nitrobenzene	Pentachloronitrobenzene	Styrene	Isopropylbenzene (Cumene)	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Benzal Chloride	Benzotrichloride	Hexachlorocyclopentadiene	Hexachloroethane	Pentachlorobenzene
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05	0.05	1	0.5	0.5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																							
PFAS NEMP 2020 Industrial/ commercial (HIL D)																							
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)							**7.4**	**22**	**13**	**3500**	**990**	**5800**	**2400**		**12000**	**12000**	**180**	**150**		**0.25**	**0.75**	**8**	**93**
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																	
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot	<1	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot	<1	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot	<1	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
AEC18	A-BH06	0.4-0.6	A-BH06_0.4-0.6	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	A-BH06	1-1.2	A-BH06_1.0-1.2	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH40	1.2-1.4	BH40_1.2-1.4	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH41	0.8-1	BH41_0.8-1.0	12/03/2024	ES2408075	Pacific Highway Verge	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-
AEC18	BH41	2.1-2.2	BH41_2.1-2.2	12/03/2024	ES2408075	Pacific Highway Verge	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-
AEC18	BH46	0.04-0.6	BH46_0.04-0.6	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC18	BH46	1.1-1.3	BH46_1.1-1.3	15/12/2023	ES2344549	Railway Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	Howarth Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	Howarth Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	A-BH03	0.7-0.8	A-BH03_0.7-0.8	13/12/2023	ES2343854	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	A-BH03	2-2.1	A-BH03_2.0-2.1	13/12/2023	ES2343854	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	1.6-1.7	ACM_TP19_1.6-1.7	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19A	2.8-2.9	ACM_TP19_2.8-2.9	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM_BH12A_1.0-1.2	20/12/2023	ES2344749	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	BH05_0.8-0.9	7/04/2024	ES2411530	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH05	2.2-2.3	BH05_2.2-2.3	7/04/2024	ES2411530	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2409354	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH04A	1.4-1.5	BH04A_1.4-1.5	8/03/2024	ES2409354	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	2-2.5	BH06_2.0-2.5	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH06	4.7-4.8	BH06_4.7-4.8	8/04/2024	ES2411530	South Tacoma Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	0.3-0.4	BH28_0.3-0.4	26/03/2024	ES2410587	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH28	2.8-2.9	BH28_2.8-2.9	26/03/2024	ES2410587	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH29	0.4-0.5	BH29_0.4-0.5	26/03/2024	ES2410587	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC21	BH29	1.7-1.8	BH29_1.7-1.8	26/03/2024	ES2410587	Pacific Highway	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	McPherson Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B9
Soil Analytical Results - Cyanide, Nutrients and Physico-Chemical Parameters
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Cyanides		Nutrients				Physico-Chemical Parameters														
								Cyanide Total	Weak Acid Dissociable Cyanide	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	NOx as N (1:5 soil:water)	pH (Lab)	Clay (<2 µm)	Electrical conductivity (lab)	Chloride	Fluoride	Sulfate as SO4	Cation Exchange Capacity	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	Exchangeable Sodium Percent	pH (Final)	pH (Initial)	pH (after HCL)
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units	%	µS/cm	mg/kg	mg/kg	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	pH Units	pH Units	pH Units
LOR								1	1	20	0.1	0.1	0.1	0.1	1	1	10	40	10	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
USEPA RSLs Industrial Soil THQ=0.1 (May 2023)								**15**										**4700**										
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab Report**	**Monitoring_Zone**																						
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	27/03/2024	ES2414454	Ampol, Tuggerah		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.4	1.5
AEC11	BH26	1.5-1.6	BH26_1.5-1.6	24/03/2024	ES2409806	Pacific Highway		-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	QC100_20240324	24/03/2024	ES2409806	Pacific Highway		-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH26	1.5-1.6	QC100_20240324	24/03/2024	ES2414454	Pacific Highway		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	6.8	1.5
AEC11	BH26	1.5-1.6	QC200_20240324	24/03/2024	ES2409806	Pacific Highway		-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	Anzac Avenue		-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	Anzac Avenue		-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC13	BH25	0.1-0.2	BH25_0.1-0.2	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		-	-	30	0.2	0.1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC13	BH25	0.1-0.2	BH25_0.1-0.2	5/12/2023	ES2401671	ST Yard - Rose Street Overbridge		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	8.3	1.5
AEC13	BH25	0.7-0.8	BH25_0.7-0.8	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		-	-	<20	0.1	0.2	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC13	BH25	0.7-0.8	BH25_0.7-0.8	5/12/2023	ES2401671	ST Yard - Rose Street Overbridge		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.3	1.5
AEC13	BH25	1.2-1.3	BH25_1.2-1.3	5/12/2023	ES2343534	ST Yard - Rose Street Overbridge		-	-	20	0.3	1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC15	ACM-TP13	1.9-2	ACM_TP13_1.9-2.0	18/12/2023	ES2344222	Afflux Excavation Area		-	-	-	-	-	-	4.6	28	-	-	-	-	2.3	0.7	0.9	0.2	0.2	9.4	-	-	-
AEC15	R_BH08	0-0.1	R_BH08_0.0-0.1	20/03/2024	ES2414454	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	6.4	1.5
AEC15	R-BH08	6.8-7.14	R-BH08_6.8-7.14	18/03/2024	ES2413528	Pacific Highway Grass Verge		-	-	-	-	-	-	4.6	-	136	40	-	340	-	-	-	-	-	-	-	-	-
AEC15	R-BH08	11.8-12.28	R-BH08_11.8-12.28	18/03/2024	ES2413528	Pacific Highway Grass Verge		-	-	-	-	-	-	7	-	1110	1890	-	290	-	-	-	-	-	-	-	-	-
AEC15	R-BH09	0.6-0.7	R-BH09_0.6-0.7	4/02/2024	ES2414454	Panonia Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	5.6	1.5
AEC15	R-BH10A	1-1.2	R-BH10A_1.0-1.2	3/04/2024	ES2413528	Pacific Highway/River Road Grass Area		-	-	-	-	-	-	4.8	-	468	220	-	590	-	-	-	-	-	-	-	-	-
AEC15	R-BH10A	2.8-2.95	R-BH10A_2.8-2.95	3/04/2024	ES2413528	Pacific Highway/River Road Grass Area		-	-	-	-	-	-	4.8	-	208	140	-	200	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP03	0.5-0.6	ACM-TP03_0.5-0.6	28/10/2023	ES2337379	Rail 6 Foot		<1	<1	-	-	-	-	7	-	12	-	150	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP05	0.1-0.2	ACM-TP05_0.1-0.2	28/10/2023	ES2337379	Rail 6 Foot		<1	<1	-	-	-	-	7.4	-	20	-	140	-	-	-	-	-	-	-	-	-	-
AEC17	ACM-TP08	0.5-0.6	ACM-TP08_0.5-0.6	29/10/2023	ES2337379	Rail 6 Foot		<1	<1	-	-	-	-	7.9	-	116	-	160	-	-	-	-	-	-	-	-	-	-
AEC17	R-BH20B	0.5-0.6	R-BH20B_0.5-0.6	30/11/2023	ES2401671	Rail Cess		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	8.9	1.4
AEC17	R-BH20B	1.5-1.6	R-BH20B_1.5-1.6	30/11/2023	ES2341790	Rail Cess		-	-	-	-	-	-	5.5	-	-	-	-	-	6	0.2	4.1	0.2	1.5	25.3	-	-	-
AEC18	BH40	0.07-0.47	BH40_0.07-0.47	15/12/2023	ES2401671	Railway Square		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	10.1	2.3
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2414454	Howarth Street		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.2	1.6
AEC2,3 & 4	A-BH02	1.3-1.4	BH02_1.3-1.4	3/04/2024	ES2414454	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.7	1.6
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2414454	Pacific Highway		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	9	1.6
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2414454	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	7.7	1.5
AEC2,3 & 4	BH04A	0.4-0.5	BH04A_0.4-0.5	8/03/2024	ES2414454	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	7.9	1.4
AEC2,3 & 4	BH04A	2.4-2.5	BH04A_2.4-2.5	8/03/2024	ES2409354	South Tacoma Road		-	-	-	-	-	-	4.7	23	-	-	-	-	1.1	0.2	0.4	0.1	0.1	15.6	-	-	-
AEC2,3 & 4	BH06	2-2.5	QC200_20240408	8/04/2024	1087305	South Tacoma Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2401671	McPherson Road		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	9.1	1.4
AEC21	BH28	0.3-0.4	QC200_20240326	26/03/2024	1084484	Pacific Highway		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	19/03/2024	ES2414454	Apex Park		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	9.7	1.8
AEC23	BH35	0.3-0.4	BH35_0.3-0.4	20/03/2024	ES2414454	Pacific Highway		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	7.3	1.5
AEC24	A-BH13	2-2.2	A-BH13_2.0-2.2	1/12/2023	ES2341790	Rail Cess		-	-	-	-	-	-	5.5	-	-	-	-	-	7.7	0.6	5.4	0.2	1.3	17.1	-	-	-
AEC24	A-BH14	2-2.2	A-BH14_2.0-2.2	1/12/2023	ES2341790	Rail Cess		-	-	-	-	-	-	5.3	-	-	-	-	-	12.1	1.7	8	0.3	2.1	17.5	-	-	-
AEC24	A-BH15	1.5-1.6	A_BH15_1.5-1.6	27/11/2023	ES2341301	Rail Cess		-	-	-	-	-	-	5.6	47	-	-	-	-	11.5	0.7	7.6	0.2	2.9	25.5	-	-	-
AEC24	R-TP12	0.1-0.2	R-TP12_0.1-0.2	3/04/2024	ES2414454	Pacific Highway		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	8.8	1.5
AEC7	A-BH09	0.5-0.6	A-BH09_0.5-0.6	5/12/2023	ES2401671	Wyong Station Carpark West		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	9	1.4
AEC7	ACM-BH05	0.9-1	ACM-BH05_0.9-1.0	7/12/2023	ES2401671	Wyong Station Carpark East		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.6	1.5
AEC7	HA56	0.3-0.4	HA56_0.3-0.4	18/03/2024	ES2415351	Wyong Train Station		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	6.5	1.4
AEC7	R-BH28	2.95-3	R-BH28_2.95-3.0	19/03/2024	ES2413528	Rose Street Roundabout		-	-	-	-	-	-	7.8	-	150	320	-	60	-	-	-	-	-	-	-	-	-
AEC7	R-CO01(A)	0.2-0.3	R-CO01(A)_0.2-0.3	19/03/2024	ES2414454	Wyong Train Station		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8.9	1.6
AEC7	R-CO01(A)	1.2-1.3	R-CO01(A)_1.2-1.3	19/03/2024	ES2414454	Wyong Train Station		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
AEC8	ACM-TP09	0.035-0.1	ACM-TP09_0.035-0.1	13/12/2023	ES2401671	Commuter Carpark		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	9.1	1.6
AEC9	A-TP13	0-0.2	A-TP13_0.0-0.2	19/12/2023	ES2401671	Howarth Street		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	8.9	1.5
AEC9	R-BH30	0-0.2	R-BH30_0.0-0.2	13/12/2023	ES2401671	Howarth Street - North		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	9.1	1.6

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
N/A - not applicable

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

									Metals																TPH		BTEX				PAHs		Phenolic Compounds									PFAS		PCBs	OPP	OCP
									Arsenic	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	pH (Lab)	Fluoride	Cyanide Total	C6-C9 fraction	C10-C36 fraction (sum)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Benzo(a)pyrene	Sum of PAHs	Phenol	2-Methylphenol (o-Cresol)	Total Cresols	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Sum of Phenols (non-halogenated)	Sum of Phenols	Perfluorooctanoic acid (PFOA)	Sum (PFHxS + PFOS)	Polychlorinated Biphenyls	Chlorpyrifos	Endosulfan
									mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR									**2**	**1**	**0.4**	**2**	**0.5**	**5**	**5**	**0.1**	**2**	**2**	**5**	**2**	**5**	**0.1**	**40**	**1**	**10**	**50**	**0.1**	**0.1**	**0.1**	**0.3**	**0.5**	**0.5**	**0.5**	**0.2**	**0.5**	**0.5**	**0.5**	**20**	**1**	**0.0002**	**0.0002**	**0.1**	**0.05**	**0.05**
NSW 2014 Excavated Natural Material (Absolute Max)									40		1	150		200	100	1		60			300	4.5-10				500	0.5	65	25	15	1	40													
NSW 2014 Excavated Natural Material (Max Average)									20		0.5	75		100	50	0.5		30			150	5-9				250					0.5	20												
NSW 2014 General Solid Waste CT1 (No Leaching)									100	20	20		100		100	4	100	40	20	100			3000	320	650	10000	10	288	600	1000	0.8	200		4000	4000	40	8000	288	288			<50	4	60
NSW 2014 General Solid Waste SCC1 (with leached)									500	100	100		1900		1500	50	1000	1050	50	180			10000	5900	650	10000	18	518	1080	1800	10	200	518	7200	7200	72	14400			18	1.8	<50	7.5	108
NSW 2014 Restricted Solid Waste CT2 (No Leaching)									400	80	80		400		400	16	400	160	80	400			12000	1280	2600	40000	40	1152	2400	4000	3.2	800		16000	16000	160	32000	1152	1152			<50	16	240
NSW 2014 Restricted Solid Waste SCC2 (with leached)									2000	400	400		7600		6000	200	4000	4200	200	720			40000	23600	2600	40000	72	2073	4320	7200	23	800	2073	28800	28800	288	57600			72	7.2	<50	30	432
AEC	**Location**	**Depth (m)**	**Field_ID**	**Sample Date**	**Lab_Report**	**SampleCode**																																						
AEC15	ACM-TP13	0-0.2	ACM_TP13_0.0-0.2	18/12/2023	ES2344222	ES2344222001	**<5**	-	**<1**	**14**	-	**14**	**90**	<0.1	-	**4**	-	-	**68**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC15	ACM-TP13	0.9-1	ACM_TP13_0.9-1.0	18/12/2023	ES2344222	ES2344222002	**<5**	-	**<1**	**17**	-	**10**	**16**	<0.1	-	**4**	-	-	**25**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	**1.1**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC15	ACM-TP13	1.9-2	ACM_TP13_1.9-2.0	18/12/2023	ES2344222	ES2344222003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	27/03/2024	ES2410231	ES2410231002	**12**	-	**<1**	**24**	-	**19**	**593**	<0.1	-	**5**	-	-	**168**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	**4.3**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC1	BH01A	1.1-1.2	BH01A_1.1-1.2	27/03/2024	ES2414454	ES2414454004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC1	BH01A	2.8-2.9	BH01A_2.8-2.9	27/03/2024	ES2410231	ES2410231004	**9**	-	**<1**	**20**	-	**14**	**17**	<0.1	-	**4**	-	-	**25**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC1	BH02	1-1.4	BH02_1.0-1.4	3/04/2024	EB2411878	EB2411878002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC1	BH02	1.3-1.4	BH02_1.3-1.4	3/04/2024	ES2410959	ES2410959003	**<5**	-	**<1**	**23**	-	**11**	**13**	<0.1	-	**3**	-	-	**24**	-	-	-	<10	**150**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**6.3**	**72.8**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC1	BH02	2.8-2.9	BH02_2.8-2.9	3/04/2024	ES2410959	ES2410959006	**<5**	-	**<1**	**18**	-	**15**	**14**	<0.1	-	**2**	-	-	**16**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC1	BH01	2.8-2.9	QC100_20240327	27/03/2024	ES2410231	ES2410231008	**<5**	-	**<1**	**20**	-	**13**	**14**	<0.1	-	**3**	-	-	**20**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC1	BH01	2.8-2.9	QC200_20240327	27/03/2024	1083748	S24-Ap0004911	**5.7**	-	<0.4	**16**	-	**14**	**14**	<0.1	-	**<5**	-	-	**24**	-	-	-	**<20**	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.2	**<1**	**<1**	<20	-	-	-	-	-	-
AEC11	BH30	0.4-0.5	BH30_0.4-0.5	17/03/2024	ES2409702	ES2409702001	**9**	-	**<1**	**26**	-	<5	**8**	<0.1	-	**2**	-	-	**10**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0004**	-	-	-
AEC11	BH30	0.9-1	BH30_0.9-1.0	17/03/2024	ES2409702	ES2409702002	**21**	-	**<1**	**70**	-	<5	**16**	<0.1	-	<2	-	-	<5	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC11	BH30	0.4-0.5	QC100_202240317	17/03/2024	ES2409702	ES2409702004	**17**	-	**<1**	**41**	-	<5	**11**	<0.1	-	**3**	-	-	**8**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	<0.0002	<0.0002	-	-	-
AEC11	BH30	0.9-1	QC200-20240317	17/03/2024	1081737	S24-Ma0062673	**28**	-	<0.4	**78**	-	<5	**21**	<0.1	-	**<5**	-	-	**6.6**	-	-	-	**<20**	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	-	-	-	-	-	-	-	**<0.005**	**<0.005**	-	-	-
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	19/03/2024	ES2414454	ES2414454008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH32	0.015-0.15	BH32_0.015-0.15	19/03/2024	ES2409727	ES2409727020	**<5**	-	**<1**	**65**	-	**60**	<5	<0.1	-	**104**	-	-	**49**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH32	0.65-0.8	BH32_0.65-0.8	19/03/2024	ES2409727	ES2409727022	**6**	-	**<1**	**24**	-	**8**	**9**	<0.1	-	**4**	-	-	**12**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH33	0.13-0.3	BH33_0.13-0.3	19/03/2024	ES2409727	ES2409727025	**<5**	-	**<1**	**20**	-	**8**	**8**	<0.1	-	**5**	-	-	**15**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC22	BH33	0.8-1	BH33_0.8-1.0	19/03/2024	ES2409727	ES2409727027	**6**	-	**<1**	**22**	-	**7**	**9**	<0.1	-	**4**	-	-	**11**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R_TP11	0.3-0.5	R_TP11_0.3-0.5	19/03/2024	ES2409727	ES2409727030	**6**	-	**<1**	**14**	-	**17**	**23**	**0.1**	-	**4**	-	-	**33**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC9	ACM-BH09(A)	0.5-0.6	ACM_BH09(A)_0.5-0.6	19/03/2024	ES2409727	ES2409727011	**<5**	-	**<1**	**19**	-	**7**	**14**	<0.1	-	**6**	-	-	**10**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC9	ACM-BH09(A)	1.8-1.9	ACM_BH09(A)_1.8-1.9	19/03/2024	ES2409727	ES2409727013	**7**	-	**<1**	**15**	-	**23**	**24**	<0.1	-	**7**	-	-	**40**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC9	ACM-BH09	0.6-0.7	ACM-BH09_0.6-0.7	6/12/2023	ES2402822	ES2402822001	**<5**	-	**<1**	**15**	-	**9**	**16**	<0.1	-	**4**	-	-	**9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC8	ACM-TP09	0.035-0.1	ACM-TP09_0.035-0.1	13/12/2023	ES2343854	ES2343854007	**<5**	-	**<1**	**22**	-	**57**	<5	<0.1	-	**80**	-	-	**37**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC8	ACM-TP09	0.035-0.1	ACM-TP09_0.035-0.1	13/12/2023	ES2401671	ES2401671006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC9	ACM-BH09(A)	1.8-1.9	QC100_20240319	19/03/2024	ES2409727	ES2409727014	**8**	-	**<1**	**14**	-	**24**	**24**	<0.1	-	**7**	-	-	**31**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC9	ACM-BH09(A)	1.8-1.9	QC200-2024031S	25/03/2024	1081719	S24-Ma0062587	**13**	-	<0.4	**14**	-	**23**	**21**	<0.1	-	**<5**	-	-	**23**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC7	R-BH29	0-0.2	R-BH29_0.0-0.2	7/12/2023	ES2344223	ES2344223001	**9**	-	**<1**	**8**	-	**48**	**38**	<0.1	-	**10**	-	-	**74**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC7	R-BH29	0.9-1	R-BH29_0.9-1.0	7/12/2023	ES2344223	ES2344223002	**<5**	-	**<1**	**7**	-	**6**	**9**	<0.1	-	**2**	-	-	**14**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC9	A-TP13	0-0.2	A-TP13_0.0-0.2	19/12/2023	ES2344603	ES2344603001	**8**	-	**<1**	**22**	-	**64**	**143**	**0.1**	-	**10**	-	-	**333**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	0.2	BH42_0.2	11/03/2024	ES2408075	ES2408075005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2408075	ES2408075006	**6**	-	**<1**	**9**	-	**24**	**98**	<0.1	-	**5**	-	-	**88**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**1.4**	**15.7**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC19	BH42	0.5-0.6	BH42_0.5-0.6	11/03/2024	ES2414454	ES2414454002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC19	BH42	3-3.1	BH42_3.0-3.1	11/03/2024	ES2408075	ES2408075010	**<5**	-	**<1**	**9**	-	<5	**11**	<0.1	-	<2	-	-	**15**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC9	R-BH30	0-0.2	R-BH30_0.0-0.2	13/12/2023	ES2401671	ES2401671005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC9	R-BH30	0-0.2	R-BH30_0.0-0.2_20231212	12/12/2023	ES2343854	ES2343854001	**8**	-	**<1**	**8**	-	**20**	**211**	<0.1	-	**3**	-	-	**247**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC5	R-BH37	0.4-0.6	20240322-R-BH37_0.4-0.6	22/03/2024	ES2409765	ES2409765010	**<5**	-	**<1**	**23**	-	**16**	**19**	<0.1	-	**7**	-	-	**25**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC5	R-BH37	0.9-1.1	20240322-R-BH37_0.9-1.1	22/03/2024	ES2409765	ES2409765008	**<5**	-	**<1**	**20**	-	**18**	**20**	<0.1	-	**6**	-	-	**18**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC5	R-BH37	0-0.2	20240322-R-BH37_0-0.2	22/03/2024	ES2409765	ES2409765009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP17	0-0.2	ACM_TP17_0.0-0.2	18/12/2023	ES2344222	ES2344222005	**<5**	-	**<1**	**11**	-	**9**	**16**	<0.1	-	**8**	-	-	**24**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC2,3 & 4	ACM-TP17	0.9-1	ACM_TP17_0.9-1.0	18/12/2023	ES2344222	ES2344222006	**<5**	-	**<1**	**13**	-	**13**	**13**	<0.1	-	**15**	-	-	**25**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC2,3 & 4	ACM-TP17	1.6-1.7	ACM_TP17_1.6-1.7	18/12/2023	ES2344222	ES2344222007	**<5**	-	**<1**	**18**	-	**20**	**20**	<0.1	-	**9**	-	-	**26**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-BH12A	0.5-0.6	ACM-BH12A_0.5-0.6	20/12/2023	ES2344603	ES2344603010	**10**	-	**<1**	**16**	-	<5	**10**	<0.1	-	**3**	-	-	**9**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	ACM-BH12A	1-1.2	ACM-BH12A_1.0-1.2	20/12/2023	ES2344603	ES2344603011	**<5**	-	**<1**	**17**	-	**22**	**35**	<0.1	-	**13**	-	-	**92**	-	-	-	<10	**420**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	ACM-CO05	0.8-0.9	ACM-CO05_0.8-0.9	7/04/2024	ES2411530	ES2411530002	**<5**	-	**<1**	**26**	-	**29**	**24**	<0.1	-	**13**	-	-	**35**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	**<0.0005**	**<0.0005**	-	-	-
AEC2,3 & 4	ACM-CO05	2.2-2.3	ACM-CO05_2.2-2.3	7/04/2024	ES2411530	ES2411530003	**<5**	-	**<1**	**17**	-	**28**	**16**	<0.1	-	<2	-	-	<5	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	**<0.0005**	**<0.0005**	-	-	-
AEC2,3 & 4	ACM-TP15	0.5-1	ACM-TP15_0.5-1.0m	26/03/2024	ES2410587	ES2410587003	**5**	-	**<1**	**20**	-	**12**	**12**	<0.1	-	**5**	-	-	**23**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-TP18	0-0.2	ACM-TP18_0.0-0.2	20/12/2023	ES2344603	ES2344603005	**<5**	-	**<1**	**13**	-	**76**	**13**	<0.1	-	**17**	-	-	**53**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	**0.8**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0002**	-	-	-
AEC2,3 & 4	ACM-TP18	1.9-2	ACM-TP18_1.9-2.0	20/12/2023	ES2344603	ES2344603007	**9**	-	**<1**	**14**	-	**10**	**18**	<0.1	-	**6**	-	-	**23**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	A-TP05	0.04-0.2	A-TP05_0.04-0.2m	26/03/2024	ES2410587	ES2410587008	**6**	-	**<1**	**21**	-	**6**	**20**	<0.1	-	**7**	-	-	**14**	-	-	-	<10	**100**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC2,3 & 4	A-TP05	0.4-0.9	A-TP05_0.4-0.9m	26/03/2024	ES2410587	ES2410587020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	A-TP05	0.9-1	A-TP05_0.9-1.0m	26/03/2024	ES2410587	ES2410587009	**8**	-	**<1**	**28**	-	**20**	**19**	<0.1	-	**6**	-	-	**36**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	<0.1	<0.05	<0.05
AEC2,3 & 4	BH09	0-0.2	BH09_0.0-0.2	14/12/2023	ES2343853	ES2343853007	**7**	-	**<1**	**14**	-	**21**	**49**	<0.1	-	**5**	-	-	**77**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0004**	-	-	-
AEC2,3 & 4	BH09	1.9-2	BH09_1.9-2.0	14/12/2023	ES2343853	ES2343853009	**<5**	-	**<1**	**6**	-	**5**	**11**	<0.1	-	<2	-	-	**14**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC100_20240407	7/04/2024	ES2411530	ES2411530004	**6**	-	**<1**	**29**	-	**34**	**26**	<0.1	-	**16**	-	-	**40**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	BH05	0.8-0.9	QC200_20240407	8/04/2024	1087305	S24-Ap0033366	**4.4**	-	<0.4	**33**	-	**40**	**33**	<0.1	-	**17**	-	-	**43**	-	-	-	**<20**	<50	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	**<1**	**<1**	<20	-	**<0.005**	**<0.005**	-	-	-
AEC2,3 & 4	R-BH36	0.5-0.6	R_BH36_0.5-0.6	18/12/2023	ES2344222	ES2344222014	**7**	-	**<1**	**14**	-	**23**	**17**	<0.1	-	**48**	-	-	**97**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**1.3**	**18.6**	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0002**	-	-	-
AEC2,3 & 4	R-BH36	1-1.1	R_BH36_1.0-1.1	17/12/2023	ES2344222	ES2344222015	**<5**	-	**<1**	**27**	-	**19**	**19**	<0.1	-	**11**	-	-	**34**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	R-BH35	0-0.2	R-BH35_0.0-0.2	21/12/2023	ES2344603	ES2344603014	**<5**	-	**<1**	**17**	-	**11**	**18**	<0.1	-	**7**	-	-	**32**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0003**	-	-	-
AEC2,3 & 4	R-BH35	1.9-2	R-BH35_1.9-2.0	21/12/2023	ES2344603	ES2344603016	**<5**	-	**<1**	**12**	-	**8**	**9**	<0.1	-	**3**	-	-	**17**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC5	R-BH37	2.8-3	R-BH37-2.8-3.0m	22/03/2024	ES2414432	ES2414432004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC24	R-TP13	1.5-1.7	20240407_R-TP13_1.5-1.7m	7/04/2024	ES2411715	ES2411715001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2411748	ES2411748015	**<5**	-	**<1**	**14**	-	**46**	**9**	<0.1	-	**64**	-	-	**63**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	-	-	-	-	-
AEC2,3 & 4	ACM-CO07	0.33-0.5	ACM_CO07_0.33-0.5	8/04/2024	ES2414454	ES2414454007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0-0.2	ACM_TP16_0.0-0.2	8/04/2024	ES2411748	ES2411748001	**14**	-	**<1**	**30**	-	**35**	**73**	<0.1	-	**27**	-	-	**171**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP16	0.6-0.8	ACM_TP16_0.6-0.8	8/04/2024	ES2411748	ES2411748002	**<5**	-	**<1**	**12**	-	**8**	**10**	<0.1	-	**3**	-	-	**16**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	**0.0003**	-	-	-
AEC2,3 & 4	ACM_TP16	1.5-1.7	ACM_TP16_1.5-1.7	8/04/2024	ES2411748	ES2411748003	**<5**	-	**<1**	**7**	-	<5	**7**	<0.1	-	<2	-	-	**9**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	ACM_TP19	0.6-0.8	ACM_TP19_0.6-0.8	8/04/2024	ES2411748	ES2411748007	**<5**	-	**<1**	**33**	-	**19**	**11**	<0.1	-	**20**	-	-	**18**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
AEC2,3 & 4	ACM_TP19	1.6-1.7	ACM_TP19_1.6-1.7	8/04/2024	ES2411748	ES2411748009	**<5**	-	**<1**	**20**	-	**14**	**15**	<0.1	-	**3**	-	-	**20**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC2,3 & 4	ACM_TP19	2.8-2.9	ACM_TP19_2.8-2.9	8/04/2024	ES2411748	ES2411748010	**5**	-	**<1**	**18**	-	**19**	**13**	<0.1	-	**3**	-	-	**21**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	**<0.5**	-	<0.5	<0.5	-	-	<0.0002	<0.0002	-	-	-
AEC11	BH26(B)_SV1	0.4-0.5	BH26(B)_0.4-0.5	24/03/2024	ES2409806	ES2409806006	**12**	-	**<1**	**30**	-	**5**	**16**	<0.1	-	**2**	-	-	**15**	-	-	-	<10	<50	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**1.3**	**13.1**	-	-	-	-	-	-	-	-	-	-	-	-
AEC11	BH26	0.4-0.5	BH26_0.4-0.5	24/03/2024	ES2409806	ES2409806001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

| | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | | | | | | | | | VOCs | | | | | | | | | | | | | | | | Herbicides | | | | | Foreign Material | | | | | | | | | | | | | | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | | | | | | | | | | VOCs | | | | | | | | | | | | | | | | | | | | | Herbicides | | | | | Foreign Material | | | | | | | | | | | | | | | | | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | | | | VOCs | | | | | | | | | | | | | | | | | Herbicides | | | | | Foreign Material | | | | | | | | | | | | | | | | |

Table B10
Soil Analytical Results - Waste Classification
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | VOCs | | | | | | | | | | | | | | | | | | | Herbicides | | | | | Foreign Material | | | | | | | | | | | | | | | | | | |

Table B11
Soil Analytical Results - TCLP and ASLP
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

								Metals			Polynuclear Aromatic Hydrocarbons																		
								Lead	Nickel	Zinc	Benzo(a)pyrene TEQ calc (Zero)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs
								mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR								**0.01**	**0.1**	**0.005**	**0.5**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**
NSW 2014 General Solid Waste TCLP1 (leached)								5	2													40						
NSW 2014 Restricted Solid Waste TCLP2 (leached)								20	8													160						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Test**	**Lab_Report_Number**	**SampleCode**																					
Ampol, Tuggerah	BH01A_1.1-1.2	BH01A	1.1-1.2	27/03/2024	TCLP	ES2414454	ES2414454004	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apex Park	BH32_0.015-0.15	BH32	0.015-0.15	19/03/2024	TCLP	ES2414454	ES2414454008	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Commuter Carpark	ACM-TP09_0.035-0.1	ACM-TP09	0.035-0.1	13/12/2023	TCLP	ES2401671	ES2401671006	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Howarth Street	A-TP13_0.0-0.2	A-TP13	0-0.2	19/12/2023	TCLP	ES2401671	ES2401671009	**<0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Howarth Street	BH42_0.5-0.6	BH42	0.5-0.6	11/03/2024	TCLP	ES2414454	ES2414454002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Howarth Street - North	R-BH30_0.0-0.2	R-BH30	0-0.2	13/12/2023	TCLP	ES2401671	ES2401671005	**<0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McPherson Road	R_BH36_0.5-0.6	R-BH36	0.5-0.6	18/12/2023	TCLP	ES2401671	ES2401671007	-	<0.1	-	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
Pacific Highway	ACM_CO07_0.33-0.5	ACM-CO07	0.33-0.5	8/04/2024	TCLP	ES2414454	ES2414454007	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH35_0.3-0.4	BH35	0.3-0.4	20/03/2024	TCLP	ES2414454	ES2414454012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Pacific Highway	QC100_20240324	BH26	1.5-1.6	24/03/2024	TCLP	ES2414454	ES2414454013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Pacific Highway	R-TP12_0.1-0.2	R-TP12	0.1-0.2	3/04/2024	TCLP	ES2414454	ES2414454011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Panonia Road	R-BH09_0.6-0.7	R-BH09	0.6-0.7	4/02/2024	TCLP	ES2414454	ES2414454001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Rail Cess	QC200_20240322	R-BH16A	0.4-0.6	22/03/2024	TCLP	1096015	S24-My0030926	**0.14**	-	-	-	-	-	-	-	-	-	-	-	-	-	**<1**	-	-	-	-	-	-
Rail Cess	QC200_20240323	R-BH16A	0.4-0.6	22/03/2024	ASLP	1096015	S24-My0030927	**0.07**	-	**0.62**	-	-	-	-	-	-	-	-	-	-	-	**<1**	-	-	-	-	-	-
Rail Cess	R-BH20B_0.5-0.6	R-BH20B	0.5-0.6	30/11/2023	TCLP	ES2401671	ES2401671001	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Railway Square	BH40_0.07-0.47	BH40	0.07-0.47	15/12/2023	TCLP	ES2401671	ES2401671008	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	BH02_1.3-1.4	A-BH02	1.3-1.4	3/04/2024	TCLP	ES2414454	ES2414454005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
South Tacoma Road	BH04A_0.4-0.5	BH04A	0.4-0.5	8/03/2024	TCLP	ES2414454	ES2414454003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
South Tacoma Road	BH04A_0.4-0.5	BH04A	0.4-0.5	8/03/2024	TCLP	ES2414454	ES2414454010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
South Tacoma Road	R_BH08_0.0-0.1	R_BH08	0-0.1	20/03/2024	TCLP	ES2414454	ES2414454009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
ST Yard - Rose Street Overbridge	BH25_0.1-0.2	BH25	0.1-0.2	5/12/2023	TCLP	ES2401671	ES2401671003	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST Yard - Rose Street Overbridge	BH25_0.7-0.8	BH25	0.7-0.8	5/12/2023	TCLP	ES2401671	ES2401671004	**1.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyong Station Carpark East	ACM-BH05_0.9-1.0	ACM-BH05	0.9-1	7/12/2023	TCLP	ES2401671	ES2401671010	**<0.1**	-	-	<0.5	<1	<1	**2**	<1	**1.2**	**2.3**	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	**5.5**
Wyong Station Carpark West	A-BH09_0.5-0.6	A-BH09	0.5-0.6	5/12/2023	TCLP	ES2401671	ES2401671002	-	-	-	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5
Wyong Train Station	HA56_0.3-0.4	HA56	0.3-0.4	18/03/2024	TCLP	ES2415351	ES2415351001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-
Wyong Train Station	R-CO01(A)_0.2-0.3	R-CO01(A)	0.2-0.3	19/03/2024	TCLP	ES2414454	ES2414454006	**<0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyong Train Station	R-CO01(A)_1.2-1.3	R-CO01(A)	1.2-1.3	19/03/2024	ASLP	ES2414454	ES2414454014	-	-	**1.97**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
mg/kg = milligrams per kilogram
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
TCLP - Toxicity Characteristic Leaching Procedure
ASLP - Australian Standard Leaching Procedure (deionised water)

Table B12
Soil Analytical Results - TCLP and ASLP
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

Date	ALS Ref	Envirolab Ref	Sample ID	Coal Tar Result	BaP ALS Ref	BaP Envirolab	Total PAHs (mg/kg)	BaP Results (mg/kg)
Second Round - 2024 Feb - Apr								
4/03/2024	ES2407462	346059	A-BH17_0.0-0.05	Absent	ES2407462	346059	1	0.1
12/03/2024	ES2408075	346507	BH41_0.4-0.5	Absent	ES2408075	346507	<0.05	<0.05
19/03/2024	ES2409727	347486	R-CO01(A)_0.0	Absent	ES2409727	347486	0.3	0.06
22/03/2024	ES2409761	347629	ACM-CO01_0.0-.0.4	Absent				
22/03/2024	ES2409761	347629	ACM-CO02_0.0-0.2	Absent				
22/03/2024	ES2409815	347630	ACM-CO04_0-0-0.15	Absent				
22/03/2024	ES2409869	347631	R-BH10(B)-0.22	Absent	ES2414689	347631	0.4	0.06
25/03/2024	ES2410544	348066	A-TP09_0.0-0.01	Absent				
25/03/2024	ES2410544	348066	ACM-TP11_0.0-0.01	Absent				
25/03/2024	ES2410544	348066	ACM-CO06_0.0-0.015	Absent				
26/03/2024	ES2410587	348062	ACM-TP15_0.0-0.01	Absent	ES2410587	348062	19	3.8
26/03/2024	ES2410587	348062	A-TP05_0.0-0.04	Absent				
26/03/2024	ES2410587	348062	ACM-TP01_0.0-0.05	Absent				
3/04/2024	ES2410959	348276	BH02_0.6-0.7	Absent	ES2410959	348276	86	11
2/04/2024	ES2410959	348276	R-CO06_0.29- 0.3	Absent				
2/04/2024	ES2410959	348276	R-CO06_0.4-0.5	Absent	ES2410959	348276	1800	180
2/04/2024	ES2410959	348276	R-CO05_0.22-0.27	Absent	ES2410959	348276	2000	150
4/04/2024	ES2410959	348276	BH26_0.03-0.06	Absent	ES2410959	348276	3200	350
4/04/2024	ES2410959	348276	BH27_0.04-0.08	Absent	ES2410959	348276	4500	410
8/04/2024	ES2411748	348767	ACM-TP19_0.2	Absent	ES2411748	348767-A-1	3.6	0.7
4/04/2024	ES2411748	348767	R-C006_0.3	Absent	ES2411748	348767-A-1	5300	660
First Round - 2023 Oct - Dec								
13/12/2023	ES2343854	340861	ACM-TP09_0.00-0.035	Absent				
13/12/2023	ES2343854	340861	R-TP05-0-0.04	Absent				
29/12/2023	ES2344556	340893	R-CO01_0.0-0.7	Absent				

Project: 60709736
Checked:KM
Date: 19/09/24

Table B13 - Groundwater Gauging
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

Location Code	Date	Easting	Northing	Surface Elevation (mAHD)	Well Stickdown (m)	LNAPL Depth (mbTOC)	Standing Water Level (mbTOC)	Standing Water Level (mAHD)	Well Depth (mbTOC)	Top of Casing PID (ppm)	Screen interval (mbgl)	NAPL Depth (mbTOC)	Groundwater Observation
BH01/GW01	10-Apr-24	353147.284	6315012.142	3.597	0.030	ND	2.330	1.237	5.530	5.6	2.650-5.650	ND	Silty water, brown colour, no sheen , no odour
BH01/GW07	11-Apr-24	353170.331	6315220.546	3.456	0.095	ND	2.195	1.166	4.170	0.9	1.200-4.200	ND	Rotten egg odour, dark grey to grey brown, no sheen
R-BH37 / GW11	12-Apr-24	353142.446	6315304.959	2.918	0.080	ND	1.805	1.033	4.001	1.0	1.100-4.100	ND	Pale brown to grey colour, high turbidity, no sheen, no odour
A-BH06 / GW22	10-Apr-24	353311.529	6315897.048	13.499	0.070	ND	7.170	6.259	7.930	0.7	5.000-8.000	ND	Silty water, high turbidity, no sheen, no odour
BH26 / GW26	11-Apr-24	353411.033	6316326.053	8.882	0.055	ND	2.495	6.332	10.030	2.7	4.050-10.050	ND	Silty water, high turbidity, no sheen, no odour
BH27 / GW27	25-Mar-24	353439.053	6316401.259	5.183	0.100	ND	0.980	4.103	3.490	-	0.500 - 3.500	ND	Silty water, high turbidity, no sheen, no odour
BH28 / GW28	12-Apr-24	353461.600	6316459.909	4.309	0.130	ND	0.755	3.424	5.495	11.7	2.500-5.500	ND	Silty water, high turbidity, no sheen, no odour
BH29 / GW29	12-Apr-24	353452.191	6316511.979	4.665	0.100	ND	1.550	3.015	6.235	65.5	3.235-6.235	ND	Silty water, high turbidity, no sheen, no odour
BH30 / GW30	10-Apr-24	353377.343	6316309.366	9.997	0.150	ND	1.365	8.482	5.570	6.2	2.600-5.600	ND	Silty water, high turbidity, no sheen, no odour
BH35 / GW35	10-Apr-24	353734.112	6317178.883	4.759	0.100	ND	0.310	4.349	3.560	8.3	0.600 - 3.600	ND	Silty water, high turbidity, no sheen, no odour
BH39 / GW39	10-Apr-24	353275.320	6315673.347	7.819	0.130	-	-	-	3.680	53.8	0.680 - 3.680	-	Well found dry
BH42 / GW42	10-Apr-24	353445.354	6316027.672	8.734	0.100	ND	2.670	5.964	5.500	1.8	2.500-5.500	ND	Silty water, high turbidity, no sheen, no odour
A-BH17	09-Apr-24	353221.338	6315688.915	2.839	0.050	ND	2.170	0.619	4.750	585.0	1.750-4.750	ND	pale brown to grey colour, low turbidity, no sheen, no odour
BH10 (existing well PB-BH10)	10-Apr-24	353254.523	6315450.072	5.193	0.080	ND	4.190	0.923	17.520	0.0	Unknown	ND	clear colour, low to moderate turbidity, no odour, no sheen
A-BH02	10-Apr-24	353191.566	6315183.748	2.840	0.090	ND	1.545	1.205	9.520	2.4	2.000-9.520	ND	brown to yellow colour, low turbidity, strong rotten odour, no sheen
BH04 (existing well PB-BH04)	11-Apr-24	353210.696	6315327.517	4.004	0.100	ND	3.030	0.874	16.670	1.3	Unknown	ND	Clear colour, low to moderate turbidity, sulfur odour, no sheen
R-BH08	11-Apr-24	353287.590	6315314.374	2.647	0.120	ND	2.100	0.427	13.850	22.1	Unknown	ND	pale brown colour, moderate turbidity, strong sulfur odou odour, no sheen
R-BH23	11-Apr-24	353314.336	6315835.014	12.063	0.150	ND	10.020	1.893	24.070	0.0	3.2 - 22.8	ND	pale brown colour, moderate turbidity, no odour, no sheen
BH04 (existing well)	11-Apr-24	353177.724	6315112.294	2.934	0.100	ND	1.780	1.054	5.170	0.0	Unknown	ND	brown to yellow colour, low turbiditry, strong rotten egg odour, no sheen

Notes
m = metres
mbtoc = metres below top of casing
mAHD = metres Australian Height Datum
NAPL = non-aqueous phase liquid
ppm = parts per million
PID = Photo-ionisation Detector
NA = Not Applicable

Table B14 - Groundwater Quality Parameters
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

Parameter		Volume Removed	Dissolved Oxygen (Field)	Electrical Conductivity (Field)	Total Dissolved Solids (TDS)[1,2]	pH (Field)	Temperature (Field)	Redox (Field)	Redox Potential (Eh) [3]	Comments
Units		L	mg/L	uS/cm	mg/L	pH units	°C	mV	mV	
Well ID	Date									
A-BH17	9/04/2024	3.5	0.16	8375	5025	6.24	22	-147	55	Low turbidity, clear in colour, no odour, no sheen.
BH39 / GW39	10/04/2024	-	-	-	-	-	-	-	-	Well found dry
BH01/GW01	10/04/2024	2.5	0.12	502	301	6.34	21.7	-163.5	38.5	Moderate turbidity, yellow colour, sulfur odour, no sheen.
BH42 / GW42	10/04/2024	4.5	0.07	1224	734	5.32	21.5	103.6	305.6	No turbidity, clear in colour, no odour, no sheen.
BH35 / GW35	10/04/2024	2.25	0.11	13567	8140	5.58	23	-84.9	117.1	Moderate turbidity, clear in colour, no odour, no sheen.
A-BH06 / GW22	10/04/2024	1.3	1	5592	3355	6.01	21.8	140.4	342.4	High turbidity, red to brown colour, no odour, no sheen.
BH30 / GW30	10/04/2024	1.5	0.1	773	464	6.78	24.5	-63.2	138.8	Moderate turbidity with suspended solids, clear in colour, no odour, no sheen.
BH10 (existing well PB-BH10)	10/04/2024	2.2	0.1	6330	3798	5.94	20.3	128.5	330.5	Low to moderate turbidity with suspended solids, clear in colour, no odour, no sheen.
A-BH02	10/04/2024	3.5	0.07	226	135	5.51	21.1	-203.8	-1.8	Low turbidity, yellow in colour, strong sulfur odour, no sheen.
PB-BH04	11/04/2024	2.0	0.07	18652	11191	6.61	21.3	-213.8	-11.8	Low to moderate turbidity with suspended solids, clear in colour, sulfur odour, no sheen.
R-BH08	11/04/2024	2.5	0.18	416	249	5.96	20.1	-160.1	41.9	Low turbidity, yellow in colour, strong sulfur odour, no sheen.
BH04 (existing well PB-BH04)	11/04/2024	1.8	0.08	328	197	4.69	24	-126.7	75.3	Low turbidity, yellow in colour, sulfur odour, no sheen.
R-BH23	11/04/2024	-	1.86	515	309	5	22.2	201.4	403.4	Moderate turbidity, pale brown colour, no odour, no sheen.
A-BH03A / GW07	11/04/2024	4.5	0.05	183	110	5.05	24.5	-144.2	57.8	Low to moderate turbidity, clear in colour, strong sulfur odour, no sheen.
BH26 / GW26	11/04/2024	3.0	0.2	454	272	4.53	23.7	-28	174	Low turbidity, clear in colour, no odour, no sheen.
BH27/GW27	11/04/2024	-	-	-	-	-	-	-	-	No field record. Well sampled.
BH28 / GW28	12/04/2024	2.3	0.01	5098	3059	5.68	23.2	-99.3	102.7	Low turbidity with suspended solids, clear in colour, sulfur odour, no sheen.
BH29 / GW29	12/04/2024	1.5	0.06	2980	1788	5.69	24.2	142.9	344.9	Low to moderate turbidity, red-brown colour, sulfur odour, no sheen.
R-BH37 / GW11	12/04/2024	2.3	0.17	407	244	6.14	25.9	-167.2	34.8	Moderate turbidity, light brown colour, sulfur odour, no sheen.
SV1-S	23/04/2024	1.4	0.05	428	257	5.79	25.5	-44.9	157.1	No turbidity, clear in colour, no odour, no sheen.

Notes
(1) TDS = Total Dissolved Solids
(2) TDS approximated as Electrical Conductivity x 0.6
(3) Redox Potential (Er) measured with a platinum electrode and a silver/silver chloride reference electrode (Er) and converted to Eh by Eh = Er + 202 mV (based on a groundwater temperature of 25.0°C)
L = Litres
ppm = parts per million
uS/cm = microsiemens per centimetre
mg/L = milligrams per litre
mV = millivolts
°C = degrees Celsius

Created by: ES
Checked by: KM

Table B15a
Groundwater Analytical Results
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | | | | | | TRH | | | | | | | TPH | | | | | Monocyclic Aromatic Hydrocarbons | | | | | | | | | | | | | | | Polynuclear Aromatic Hydrocarbons | | | | | | | | | | | | | | |

Table B15a
Groundwater Analytical Results
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Metals																Per- and Poly-fluoroalkyl Substances															Nutrients
							Arsenic	Arsenic (Filtered)	Cadmium	Cadmium (Filtered)	Chromium	Chromium (Filtered)	Copper	Copper (Filtered)	Lead	Lead (Filtered)	Mercury	Mercury (Filtered)	Nickel	Nickel (Filtered)	Zinc	Zinc (Filtered)	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum (PFHxS + PFOS)	Sum of WA DWER PFAS (n=10)*	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	Sum of US EPA PFAS (PFOS + PFOA)	Ammonia (as N)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
LOR							0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.005	0.005	0.02	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01
NHMRC 2008 - Guidelines for Managing Risks in Recreational Waters							0.1	0.1	0.02	0.02	0.5	0.5	20	20	0.1	0.1	0.01	0.01	0.2	0.2																			
PFAS NEMP 2018 Table 1 Health Recreational Water																														5.6					0.7				
PFAS NEMP 2020 Drinking Water																														0.56					0.07				
PFAS NEMP 2020 Recreational Water																														10					2				
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																																							
2-4m																																							
4-8m																																							
>8m																																							
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Sand																																							
2-4m																																							
4-8m																																							
>8m																																							
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																																							
2-4m																																							
4-8m																																							
>8m																																							

Monitoring_Zone	Field_ID	Location	Well	Sampled_Date	Lab_Report_I	AEC																																			
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	0.001	-	<0.0001	-	<0.001	-	0.003	-	<0.001	-	<0.0001	-	0.003	-	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<0.001	-	<0.0001	-	<0.001	-	0.005	-	<0.001	-	<0.0001	-	0.005	-	0.023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	<0.001	-	0.0003	-	<0.001	-	0.01	-	<0.001	-	<0.0001	-	0.127	-	0.176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16 / AEC25	0.002	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.016	-	0.007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	<0.001	-	<0.0001	-	<0.001	-	0.003	-	<0.001	-	<0.0001	-	0.045	-	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	-	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.001	-	<0.005	<0.02	0.03	0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.05	0.05	-	-	0.03
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	-	<0.001	-	<0.0001	-	<0.001	-	0.002	-	<0.001	-	<0.0001	-	0.002	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	-	<0.001	-	0.0002	-	<0.001	-	0.004	-	<0.001	-	<0.0001	-	0.057	-	0.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	-	<0.001	-	<0.0001	-	0.002	-	<0.001	-	<0.001	-	<0.0001	-	<0.001	-	<0.005	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	-	-	-
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	-	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	<0.001	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	<0.001	-	<0.0001	-	0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.019	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	<0.001	-	<0.0001	-	<0.001	-	0.005	-	<0.001	-	<0.0001	-	0.006	-	0.026	-	<0.02	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.01	0.01	-	-	0.08
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.005	-	0.024	-	<0.02	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.01	0.01	-	-	0.1
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	<0.001	-	<0.0002	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.004	-	0.017	-	-	<0.01	<0.01	-	-	-	-	<0.01	-	<0.05	-	-	<0.01	-	<0.01	<0.01	0.1
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	0.004	-	<0.0001	-	<0.001	-	0.001	-	<0.001	-	<0.0001	-	0.001	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	0.001	-	<0.0001	-	<0.001	-	0.001	-	<0.001	-	<0.0001	-	0.027	-	0.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	0.002	-	0.0002	-	<0.001	-	0.089	-	<0.001	-	<0.0001	-	0.015	-	0.037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	0.006	-	<0.0001	-	0.002	-	0.001	-	<0.001	-	<0.0001	-	0.003	-	0.005	-	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	-	-	-

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed

Table B15a
Groundwater Analytical Results
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

	Phenolic Compounds																										Major Ions		Halogenated Aromatic Compounds											
	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	3&4-Methylphenol (m&p-Cresol)	Total Cresols	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	4,6-Dinitro-2-methylphenol	Pentachlorophenol	2,4-Dinitrophenol	2-Cyclohexyl-4,6-dinitrophenol	4-Nitrophenol	Dinoseb	Tetrachlorophenols	Sum of Phenols (halogenated)	Sum of Phenols (non-halogenated)	Hexachlorobenzene (HCB)	pH (Lab)	Electrical conductivity (lab)	Chloride	Sulfate (as SO4-) (Filtered)	Benzyl chloride	Bromobenzene	Chlorobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2,3,4-Tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pH Units	µS/cm	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR	2	1	1	1	6	10	1	1	1	1	1	1	1	30	2	30	100	30	100	30	10	100	5	0.01	1	1	1	5	5	5	5	5	5	5	5	5	5	5
NHMRC 2008 - Guidelines for Managing Risks in Recreational Waters			3000					2000				200			100									6.5-8.5						3000			15000		400		
PFAS NEMP 2018 Table 1 Health Recreational Water																																						
PFAS NEMP 2020 Drinking Water																																						
PFAS NEMP 2020 Recreational Water																																						
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																																						
2-4m																																						
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2-4m																																						
4-8m																																						
>8m																																						

Monitoring_Zone	Field_ID	Location	Well	Sampled_Date	Lab_Report_I	AEC																																		
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.5	478	26	69	-	-	-	-	-	-	-	-
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	5.78	1620	286	334	-	<5	<5	<5	<5	<5	<5	<5	-	-
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.56	8200	4310	381	-	<5	<5	<5	<5	<5	<5	<5	-	-
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16 / AEC25	<2	9	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	5.93	-	107	66	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.85	-	1960	447	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	36.5	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.03	-	28	<10	-	<5	<5	<5	<5	<5	<5	<5	-	-
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	<2	2.3	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.62	-	6040	829	-	<5	<5	<5	<5	<5	<5	<5	-	-
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.05	259	24	41	-	<5	<5	<5	<5	<5	<5	<5	-	-
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	-	<3	<3	<3	<6	<10	<10	<3	<3	<3	<10	<10	<10	<30	<10	<30	<100	<30	<100	<30	<10	<100	<5	-	-	-	-	<5	-	-	-	-	<5	<5	<5	<5
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	<2	1.2	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	6.29	3030	712	282	-	<5	<5	<5	<5	<5	<5	<5	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	5.83	187	18	44	-	<5	<5	<5	<5	<5	<5	<5	-	-

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed

Table B15a
Groundwater Analytical Results
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

							Halogenated Aliphatic Compounds																													Fumigants					Trihalomethanes				Oxygenated Compounds					Chlorinated Hydrocarbons					
							1,2,4,5-Tetrachlorobenzene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,3,5-Trichlorobenzene	Dichlorodifluoromethane (Freon 12)	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane (Freon 11)	1,1-Dichloroethene	Iodomethane	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-Trichloroethane	1,3-Dichloropropane	Tetrachloroethene	1,1,1,2-Tetrachloroethane	trans-1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Pentachloroethane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	2,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Bromodichloromethane	Bromoform	Chloroform	Dibromochloromethane	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)	Carbon disulfide	Benzal Chloride	Benzotrichloride	Hexachlorocyclopentadiene	Hexachloroethane	Pentachlorobenzene
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							5	5	5	5	50	50	50	50	50	50	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	50	50	50	5	0.1	0.1	5	5	5
NHMRC 2008 - Guidelines for Managing Risks in Recreational Waters													3	10			300								30	30				500							7	10															
PFAS NEMP 2018 Table 1 Health Recreational Water																																																			
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| Monitoring_Zone | Field_ID | Location | Well | Sampled_Date | Lab_Report_I | AEC | | | | | | | | | | | | | | | | | | |

Table B15a
Groundwater Analytical Results - Ecological Criteria
Wyong Town Centre
TfNSW - Wyong

AECOM

							Metals																					Major Ions		Nutrients	Total Recoverable Hydrocarbo					
							Arsenic*	Arsenic* (Filtered)	Cadmium	Cadmium (Filtered)	Chromium	Chromium (Filtered)	Copper	Copper (Filtered)	Lead	Lead (Filtered)	Mercury**	Mercury** (Filtered)	Nickel	Nickel (Filtered)	Zinc	Zinc (Filtered)	pH (Lab)	Electrical conductivity (lab)	Chloride	Sulfate as SO4 (Turbidimetric) (Filtered)	Ammonia (as N)	C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH Units	µS/cm	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.005	0.005	0.01	1	1	1	0.01	20	20	100	100	100	100
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							0.013	0.013	0.0002	0.0002	0.001	0.001	0.0014	0.0014	0.0034	0.0034	0.00006	0.00006	0.011	0.011	0.008	0.008					0.9							
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)									0.0055	0.0055	0.0044	0.0044	0.0013	0.0013	0.0044	0.0044	0.0001	0.0001	0.07	0.07	0.008	0.008					0.91							
PFAS NEMP 2020 Interim Marine 95%																																			
PFAS NEMP 2020 Interim Marine 99%																																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Well**	**Sampled Date**	**Lab_Report**	**AEC**																													
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	0.001	-	<0.0001	-	<0.001	-	0.003	-	<0.001	-	<0.0001	-	0.003	-	0.024	-	6.5	478	26	69	-	<20	<20	<100	<100	<100	<100
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<0.001	-	<0.0001	-	<0.001	-	0.005	-	<0.001	-	<0.0001	-	0.005	-	0.023	-	5.78	1620	286	334	-	<20	<20	<100	<100	<100	<100
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	<0.001	-	0.0003	-	<0.001	-	0.01	-	<0.001	-	<0.0001	-	0.127	-	0.176	-	6.56	8200	4310	381	-	<20	<20	<100	<100	<100	<100
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16	0.002	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.016	-	0.007	-	-	-	-	-	-	400	210	<100	<100	<100	<100
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	<0.001	-	<0.0001	-	<0.001	-	0.003	-	<0.001	-	<0.0001	-	0.045	-	0.024	-	-	-	-	-	-	<20	<20	<100	<100	<100	<100
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	-	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.001	-	<0.005	-	-	-	-	0.03	<20	<20	<100	<100	<100	<100
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	-	<0.001	-	<0.0001	-	<0.001	-	0.002	-	<0.001	-	<0.0001	-	0.002	-	0.006	5.93	-	107	66	-	<20	<20	<100	<100	170	<100
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	-	<0.001	-	0.0002	-	<0.001	-	0.004	-	<0.001	-	<0.0001	-	0.057	-	0.043	6.85	-	1960	447	-	<20	<20	<100	<100	<100	<100
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	-	<0.001	-	<0.0001	-	0.002	-	<0.001	-	<0.001	-	<0.0001	-	<0.001	-	<0.005	6.03	-	28	<10	-	70	70	<100	<100	<100	<100
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	-	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	<0.001	-	<0.005	6.62	-	6040	829	-	<20	<20	150	150	<100	<100
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	<0.001	-	<0.0001	-	0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.019	-	<0.005	-	6.05	259	24	41	-	<20	<20	<100	<100	270	<100
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	<0.001	-	<0.0001	-	<0.001	-	0.005	-	<0.001	-	<0.0001	-	0.006	-	0.026	-	-	-	-	-	0.08	<20	<20	<100	<100	120	<100
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	<0.001	-	<0.0001	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.005	-	0.024	-	-	-	-	-	0.1	<20	<20	<100	<100	110	<100
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	<0.001	-	<0.0002	-	<0.001	-	<0.001	-	<0.001	-	<0.0001	-	0.004	-	0.017	-	-	-	-	-	0.1	<20	<20	<50	<50	<100	<100
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	0.004	-	<0.0001	-	<0.001	-	0.001	-	<0.001	-	<0.0001	-	0.001	-	<0.005	-	-	-	-	-	-	<20	<20	<100	<100	<100	<100
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	0.001	-	<0.0001	-	<0.001	-	0.001	-	<0.001	-	<0.0001	-	0.027	-	0.027	-	-	-	-	-	-	<20	<20	<100	<100	190	<100
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	0.002	-	0.0002	-	<0.001	-	0.089	-	<0.001	-	<0.0001	-	0.015	-	0.037	-	6.29	3030	712	282	-	30	<20	<100	<100	<100	<100
Pacific Highway	R-BH08	R-BH08		11/04/2024	ES2411983	AEC15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.33	-	63	1	-	-	-	-	-	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	0.006	-	<0.0001	-	0.002	-	0.001	-	<0.001	-	<0.0001	-	0.003	-	0.005	-	5.83	187	18	44	-	<20	<20	<100	<100	320	<100

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
*Value for Arenic (AsV) adopted - most conservative value
** 99% level of species protection for mercury

Table B15a
Groundwater Analytical Results - Ecological Criteria
Wyong Town Centre
TfNSW - Wyong

AECOM

	ns	otal Petroleum Hydrocarbon					Monocyclic Aromatic Hydrocarbons																Polynuclear Aromatic Hydrocarbons															
	>C10-C40 fraction (sum)	C6-C9 fraction	C10-C14 fraction	C15-C28 fraction	C29-C36 fraction	C10-C36 fraction (sum)	Naphthalene (BTEXN)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Styrene	Isopropylbenzene (Cumene)	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Total BTEX	Benzo(a)pyrene TEQ calc (Zero)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR	100	20	50	100	50	50	5	1	2	2	2	2	2	5	5	5	5	5	5	5	5	5	1	0.5	1	1	1	1	1	1	1	1	1	0.5	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							16	950	180	80		350			30										16			0.4		2	1.4				0.2			
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							70	700	180	80					30										70			0.4		2	1.4				0.2			
PFAS NEMP 2020 Interim Marine 95%																																						
PFAS NEMP 2020 Interim Marine 99%																																						

Monitoring_Zone	Field_ID	Location_Code	Well	Sampled Date	Lab_Report	AEC																																		
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.6	<1	<1	<1
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16	<100	280	180	<100	<50	180	<5	<1	150	4	33	<2	33	-	-	-	-	-	-	-	-	187	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	170	<20	<50	210	<50	210	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	<100	60	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	150	<20	110	<100	<50	110	<5	2	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	2	<0.5	1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	270	<20	<50	260	<50	260	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	120	<20	<50	110	<50	110	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	110	<20	<50	110	<50	110	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	<100	<20	<50	<100	<100	<100	<10	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	<100	<20	<50	<100	<50	<50	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	190	<20	<50	190	<50	190	<5	<1	4	<2	<2	<2	<2	-	-	-	-	-	-	-	-	4	<0.5	<1	<1	<1	<1	<1	1.3	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	<100	20	<50	<100	<50	<50	<5	<1	23	<2	<2	<2	<2	-	-	-	-	-	-	-	-	23	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
Pacific Highway	R-BH08	R-BH08		11/04/2024	ES2411983	AEC15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	320	<20	<50	320	<50	320	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
*Value for Arenic (AsV) adopted - most conservative value
** 99% level of species protection for mercury

Table B15a
Groundwater Analytical Results - Ecological Criteria
Wyong Town Centre
TfNSW - Wyong

AECOM

							Phenolic Compounds																					Per- and Poly-fluoroalkyl Substa								
							Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs	3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	3&4-Methylphenol (m&p-Cresol)	Total Cresols	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	4,6-Dinitro-2-methylphenol	Pentachlorophenol	2,4-Dinitrophenol	2-Cyclohexyl-4,6-dinitrophenol	4-Nitrophenol	Dinoseb	Tetrachlorophenols	Sum of Phenols (halogenated)	Sum of Phenols (non-halogenated)	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							1	1	0.5	2	1	1	1	6	10	1	1	1	1	1	1	1	30	2	30	100	30	100	30	10	100	0.02	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)											320	490					160				20			10	45														
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)											400													22															
PFAS NEMP 2020 Interim Marine 95%																																	**0.13**				**220**		
PFAS NEMP 2020 Interim Marine 99%																																	0.00023				19		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Well**	**Sampled Date**	**Lab_Report**	**AEC**																																		
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	<1	<1	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16	<1	<1	<0.5	<2	9	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	<0.02	0.03	0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	<1	<1	1	36.5	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	<1	<1	1	<2	2.3	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	<0.02	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	<0.02	<0.01	0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	<1	<1	<1	-	<3	<3	<3	<6	<10	<10	<3	<3	<3	<10	<10	<10	<30	<10	<30	<100	<30	<100	<30	<10	<100	-	<0.01	<0.01	-	-	-	-	<0.01	-	<0.05
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	<1	<1	1.3	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	<1	<1	<0.5	<2	1.2	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	R-BH08	R-BH08		11/04/2024	ES2411983	AEC15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	<1	<1	<0.5	<2	<1	<1	<1	-	-	<1	<1	<1	<1	<1	<1	<1	-	<2	-	-	-	-	-	-	-	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
*Value for Arenic (AsV) adopted - most conservative value
** 99% level of species protection for mercury

Table B15a
Groundwater Analytical Results - Ecological Criteria
Wyong Town Centre
TfNSW - Wyong

AECOM

| | | |

Table B15a
Groundwater Analytical Results - Ecological Criteria
Wyong Town Centre
TfNSW - Wyong

AECOM

							Halogenated Aliphatic Compounds																					Trihalomethanes				Fumigants					Oxygenated Compounds			
							1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-Trichloroethane	1,3-Dichloropropane	Tetrachloroethene	1,1,1,2-Tetrachloroethane	trans-1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Pentachloroethane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene	Bromodichloromethane	Dibromochloromethane	Tribromomethane (Bromoform)	Trichloromethane (Chloroform)	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	2,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR							5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	50	50	50	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										270		240	1900	330		6500	1100	70				400		80						770		900						
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)										270		240	1900	330		1900	1100	70				400		80						770		900						
PFAS NEMP 2020 Interim Marine 95%																																							
PFAS NEMP 2020 Interim Marine 99%																																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Well**	**Sampled Date**	**Lab_Report**	**AEC**																																	
Ampol, Tuggerah	BH01	BH01	GW01	10/04/2024	ES2411585	AEC1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Howarth Street	BH42	BH42	GW42	10/04/2024	ES2411585	AEC19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Railway Square	A-BH06	A-BH06	GW22	10/04/2024	ES2411585	AEC18	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	22	<5	<5	<5	<5	<5	<50	<50	<50	<50
River Road	A-BH17	A-BH17		10/04/2024	ES2411585	AEC16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH35	BH35	GW35	10/04/2024	ES2411585	AEC23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anzac Avenue	BH30	BH30	GW30	10/04/2024	ES2411983	AEC11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<50	<50	<50
Pacific Highway	R-BH23	R-BH23		11/04/2024	ES2411983	AEC18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH10	BH10		11/04/2024	ES2411983	AEC15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH02	A-BH02		10/04/2024	ES2411983	AEC2,3 & 4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
South Tacoma Road	BH04	BH04		11/04/2024	ES2411983	AEC2, 3 & 4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
McPherson Road	R-BH37	R-BH37	GW11	12/04/2024	ES2412153	AEC5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Pacific Highway	BH26	BH26	GW26	11/04/2024	ES2412153	AEC11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Pacific Highway	QC100_20240411	BH26	GW26	11/04/2024	ES2412153	AEC11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Pacific Highway	QC200_20240411	BH26	GW26	11/04/2024	1089086	AEC11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-
Pacific Highway	BH27	BH27	GW27	11/04/2024	ES2412153	AEC12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pacific Highway	BH28	BH28	GW28	12/04/2024	ES2412153	AEC21	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Pacific Highway	BH29	BH29	GW29	12/04/2024	ES2412153	AEC21	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-
Pacific Highway	R-BH08	R-BH08		11/04/2024	ES2411983	AEC15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Tacoma Road	A-BH03	A-BH03	GW07	11/04/2024	ES2412153	AEC2,3 & 4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-

Notes:
µg/L = micrograms per litre
mg/L = milligrams per litre
LOR = Limit of Reporting
< denotes result less than LOR
- denotes not analysed
*Value for Arenic (AsV) adopted - most conservative value
** 99% level of species protection for mercury

Table B16 - Soil Vapour
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

								Alkenes									Volatile Aliphatic Hydrocarbons				Total Recoverable Hydrocarbons				Monocyclic Aromatic Hydrocarbons										PAHs	
								2-Methyl-2-Butene	Methyl Acetylene	trans-2-Butene	trans-2-Pentene	cis-2-Pentene	1-Butene	1-Pentene	Propadiene	Isobutylene	Pentane	Heptane	Hexane	Cyclohexane	C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C12	>C10-C16 (minus Naphthalene)(F2)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Styrene	1-methyl-4 ethyl benzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Naphthalene	Total Nitrogen (as N)
								MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	MOL %	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	MOL %
EQL								**0.01**	**0.01**	**0.03**	**0.01**	**0.01**	**0.03**	**0.01**	**0.01**	**0.03**	**0.01**	**2.1**	**5**	**3.5**	**100**	**100**	**100**	**100**	**1.6**	**7.5**	**2.2**	**4.4**	**2.2**	**6.6**	**2.1**	**2.5**	**2.5**	**2.5**	**10.5**	**0.1**
NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs																																			
DECCW (2010) Vapour Intrusion Technical Practice Note																																			
CRC Care 2011 Table B1 Soil Vapour HSL Int. Main. Worker (Shallow Trench), Sand																																			
0-2m																					180000000		NL	760000	NL	NL			NL						
2-4m																					NL		NL	5100000	NL	NL			NL						
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand																																			
0-1m																					680000		500000	4000	4800000	1300000			840000					3000	
1-2m																					2800000		2400000	10000	16000000	4600000			3200000					15000	
2-4m																					7000000		NL	30000	39000000	11000000			8000000					35000	
Monitoring_Zone	**Field_ID**	**Location_(**	**Well**	**Well Depth**	**Well De**	**Sampled_Dat**	**Lab_Report_Number**																												
Pacific Highway	QC100_20240423	BH27	SV2	0.6 mbgl	4.55	23/04/2024	1091616	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**60**	**81**	**43**	**11,000**	**11,000**	**420**	**420**	**<3**	**20**	**17**	**45**	**34**	**79**	**<4**	**6.6**	**11**	**5.4**	**<22**	**47**
Pacific Highway	SV2_20240423	BH27	SV2	0.6 mbgl	4.55	23/04/2024	1091616	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**<0.02**	**<0.06**	**<0.02**	**69**	**94**	**50**	**11,000**	**11,000**	**530**	**530**	**<3**	**79**	**30**	**130**	**65**	**200**	**<4**	**18**	**30**	**12**	**<22**	**47**
Pacific Highway	SV4_20240423	BH29	SV4	2.5 mbgl	2.19	23/04/2024	1091616	**<0.03**	**<0.03**	**<0.08**	**<0.03**	**<0.03**	**<0.08**	**<0.03**	**<0.03**	**<0.08**	**<0.03**	**77**	**61**	**20**	**9000**	**7500**	**1100**	**1100**	**30**	**460**	**140**	**680**	**270**	**950**	**<5**	**170**	**250**	**93**	**<27**	**77**

Table B16 - Soil Vapour
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

| | | | | | | | | Hydrocarbon Gases | | | | | | | | | | Other | | | Inorganics | | Fumigants | | | | Halogenated Aromatic Compounds | | | | | | | | | |

Table B16 - Soil Vapour
Pacific Highway Upgrade
Wyong Town Centre
TfNSW

AECOM

	Halogenated Aliphatic Compounds														Trihalomethanes				Oxygenated Compounds						Sulfonated Compounds	Alcohols		iso-Alkanes	VOCs		
	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	1,1,2-Trichloroethane	Tetrachloroethene	1,1,2,2-Tetrachloroethane	1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	Dichloromethane	1,2-Dichlorotetrafluoroethane (Freon 114)	Hexachlorobutadiene	Bromodichloromethane	Bromoform	Chloroform	Dibromochloromethane	2-Propanone (Acetone)	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)	Methyltertbutylether (MTBE)	Carbon disulfide	2-Propanol	Ethanol	2,2,4-Trimethylpentane	1,4-Dioxane	1,3-Butadiene (vinyl ethylene)	Tetrahydrofuran
	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL	**2**	**2**	**2**	**2.7**	**3.1**	**2**	**2.7**	**2.7**	**3.4**	**3.4**	**3.8**	**17.4**	**3.5**	**21.3**	**3.4**	**5.2**	**2.4**	**4.3**	**16.6**	**7**	**5.9**	**8.2**	**2.1**	**7.2**	**15.6**	**50**	**9.4**	**9.3**	**7.2**	**2.2**	**1.5**
NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs		300		230000			80		8000																						
DECCW (2010) Vapour Intrusion Technical Practice Note						700						450					140														
CRC Care 2011 Table B1 Soil Vapour HSL Int. Main. Worker (Shallow Trench), Sand																															
0-2m																															
2-4m																															
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand																															
0-1m																															
1-2m																															
2-4m																															

Monitoring_Zone	Field_ID	Location_(	Well	Well Depth	Well De	Sampled_Dat	Lab_Repor																									
Pacific Highway	QC100_20240423	BH27	SV2	0.6 mbgl	4.55	23/04/2024	1091616	<4	<4	<4	<6	<7	<4	<6	<6	<7	<7	<8	<37	<7	<45	<7	<11	<5	<9	53	<15	<12	<17	<4	<15	45	810	<20	<20	<15	<5	<3
Pacific Highway	SV2_20240423	BH27	SV2	0.6 mbgl	4.55	23/04/2024	1091616	<4	<4	<4	<6	<7	<4	<6	<6	<7	<7	<8	<37	<7	<45	<7	<11	<5	<9	68	<15	<12	<17	<4	<15	55	940	<20	<20	<15	<5	<3
Pacific Highway	SV4_20240423	BH29	SV4	2.5 mbgl	2.19	23/04/2024	1091616	<5	<5	<5	<7	<8	<5	<7	<7	<9	<9	<10	<45	<9	<55	<9	<14	<6	<11	59	<18	<15	<21	<5	<19	<41	18,000	<24	190	<19	<6	<4

Appendix C

Previous investigations



AECOM

N

0 25 50 m

DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Local road
- Railway

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS

SHEET 1 OF 6

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Department of Customer Services, 2023



C:\Users\AustinM3\OneDrive - AECOM\Sharepoint Projects\60709736 - WTC900_CAD GIS\920_GIS\60709736_WyongTownCentre_GIPP.aprx\GIPP016_01_A3LMS_MF01_FX-X_GeotechCombinedLocations_240809 Date Saved: 1/10/2024

AECOM

N

0 25 50 m

DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Local road
- Railway

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS

SHEET 2 OF 6

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Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



AECOM

N

0 25 50 m

DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Local road
- Railway

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS
SHEET 3 OF 6

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C:\Users\AustinM3\OneDrive - AECOM\Sharepoint Projects\60709736 - WTC\900_CAD GIS\920_GIS\60709736_WyongTownCentre_GIPP.aprx\GIPP016_01_A3LMS_MF011_FX-X_GeotechCombinedLocations_240809 Date Saved: 1/10/2024

AECOM

N

0 25 50 m

DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Main Road
- Local road
- Railway
- Watercourse

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS

SHEET 4 OF 6

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DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Local road
- Railway
- Watercourse

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS
SHEET 5 OF 6

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AECOM

N

0 25 50 m

DATE EXPORTED:
2/10/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Project Boundary
- Pacific Highway Upgrade
- Culvert
- Motorway
- Local road
- Railway

AECOM Locations

- Borehole
- CPT
- Groundwater Well
- Hand Auger
- Pavement Core
- Soil Vapour Borehole
- Soil Vapour Well
- Test Pit

Existing Locations

- Existing Borehole
- Existing CPT
- Existing DCP
- Existing Groundwater Well
- Existing Pavement Core
- Existing Test Pit

WYONG GEOTECHNICAL INVESTIGATION LOCATIONS

SHEET 6 OF 6

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Department of Customer Services, 2023

Appendix D

Calibration records

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Interface Meter
Heron H.Oil

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	Heron H.Oil Interface Meter (60m)
Serial Number	01-8151
Client Name	Eric Serttas/Alex To/Fahim Rashid/James Looney (AECOM Australia Pty Ltd)
Project Number	60709736 Task CDRL 1100

Instrument Check			
Item	Test	Test Passed	Comments
9V Battery	Klein Tools MM300 Multimeter	✓	Battery voltage reading above 7.9V
Battery Box	Check	✓	No damage
Face and Back Plates	Check	✓	No damage
Thumb Screws	Check	✓	Rubber ends intact
Tape Hangar/Protector	Check	✓	No damage
On/Off Button	Operation	✓	Button is functional
Buzzer	Operation	✓	Intermittent tone in H_2O, solid tone in product
LED Signal Light	Operation	✓	LED light functional – green and red
Probe	Operation/Check	✓	Decontaminated, cleaned and tested
Tape	Condition/Check	✓	Decontaminated and cleaned, no damage
Connection	Check	✓	Probe and link connected correctly and tightly
PCB	Operation	✓	Unit is fully functional
Electronics Panel	Orientation	✓	Correctly aligned

Instrument Readings		
Product	Buzzer	LED Light
H_2O	Intermittent	Blinking – Red
Petroleum	Solid	Steady – Red

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The interface meter was decontaminated, cleaned and tested with a mixture of tap water and petrol, shielded from ambient light.

Checked By	William Pak
Calibration Date	13/03/2024
Calibration Due	13/09/2024

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service@wamscientific.com.au

SPX DIELECTRIC

MULTIGAS DETECTOR ATP-735 rev E

Certificate of Calibration

Name:_____
Company: Arcmet Scientific PTY LTD
Customer No.: 05-001203
Phone No.:_____

MGD P/N: 83219 Date: April 24 23

SN#: 041880 Software Rev. 1.13

New: ____ Repair: X

Work order#: 615785 SRA#: H 30970

Calibration conditions		Acceptable Range
Temperature	72	68-80 F
Humidity	30	<85%
Pump Vol.	1.10 L/min	.90 -1.20 l/min
Calibration point	**X = Complete**	
0%	X	Set point
2%	X	Set point
50%	X	Set point
100%	X	Set point
25 ppm (final check)	X	25 – 75 ppm
Attachment functionality	X	
Other	____	

Note: All test equipment used in manufacturing and repair is calibrated and traceable. Unless otherwise noted, the accuracy ratios are equal to or greater than 4:1.
Calibration Procedure used: MGD-2002 Helium Detector Calibration Procedure.

The 2% through 100% tests are performed with pre mixed (grade 5) helium with the remainder being nitrogen. Using a direct Siphon test method.

The 25ppm is performed as a final check as helium permeates a latex membrane.

The unit's upper reading limit is set at 100% a brief display of +100% is acceptable for a short duration (<10 sec) allowing for sensor stabilization.

Calibration performed by: Jule

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RAYMOND, MAINE 04071
USA

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TOLL FREE | 877 | 247 | 3797
FAX | 207 | 655 | 8535

rd.sales.us@spx.com

www.radiodetection.com

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Water Quality Meter
YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Quatro Water Quality Meter w/ 1m Quatro Cable
Serial Number	21A102654
Client Name	Eric Serttas/Alex To/Fahim Rashid (AECOM Australia Pty Ltd)
Project Number	60709736 task CDRL 400
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	31.1	31.1	31.1	°C
pH	pH 4.00	386466	4.01	4.03	4.01	pH
pH	pH 7.00	387329	7.00	7.01	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2780	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	216.4	218.1	216.4	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	0.1	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	94.9	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	06/03/2024
Calibration Due	06/09/2024

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

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E: accounts@wamscientific.com.au

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration
Water Quality Meter
YSI Professional Plus

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	YSI Pro Quatro Water Quality Meter w/ 1m Quatro Cable
Serial Number	21A103776
Client Name	Eric Serttas/Fahim Rashid (AECOM Australia Pty Ltd)
Project Number	60709736 CDRL 1100
Comments	-

Instrument Check

Item	Test	Test Passed	Comments
2 x Alkaline C-size Batteries	Klein Tools MM300 Multimeter	✓	Both batteries reading above 2.9V
Battery Saver Function	Operation	✓	Automatically turns off after 60 minutes if idle
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Connection Port and Cable	Condition/Check	✓	Clean, no damage
Monitor Housing	Condition/Check	✓	No damage
Firmware	Version	✓	4.0.0
pH Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
pH millivolts for pH 7.00	Calibration	✓	pH 7.00 calibration range between 0 mV ± 50 mV
pH millivolts for pH 4.00	Calibration	✓	pH 4 mV range +165 to +180 from 7 buffer mV value
pH slope	Calibration	✓	Range between 55 to 60 mV/pH (ideal value 59 mV)
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
ORP Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
ORP Reading	Calibration	✓	Within ± 80 mV of reference Zobell Reading
Response time < 90 seconds	Calibration	✓	Responds to correct value within 90 seconds
Conductivity/Temp Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
Conductivity Cell	Calibration	✓	Conductivity cell constant 5.0 ± 1.0 in GLP file
Clean Sensor Readings	Calibration	✓	Clean sensor reads less than 3 uS/cm in dry air
Dissolved Oxygen Probe	Condition/Calibration	✓	Calibrated and conforms to manufacturer's specs
DO Cap	Condition/Calibration	✓	1.25 mil PE membrane (yellow membrane)
DO Sensor in Use	Condition	✓	Polarographic DO sensor
DO Sensor Value	Calibration	✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA

Instrument Readings

Parameter	Standard Used	Reference No.	Calibration Value	Observed	Actual	Units
Temperature	Centre 370 Thermometer	Room Temp.	17.0	16.5	17.0	°C
pH	pH 4.00	386466	4.01	3.96	4.01	pH
pH	pH 7.00	387329	7.00	6.99	7.00	pH
Conductivity	2760 µs/cm at 25°C	388521	2760	2772	2760	µs/cm
ORP (Ref. check only)	Zobell A & B	380835/382785	248.0	241.7	248.0	mV
Zero Dissolved O_2	$NaSO_3$ in Distilled H_2O	389912	0.0	-1.2	0.0	%
100% Dissolved O_2	100% Air Saturated H_2O	Fresh Air	100.0	96.6	100.0	%

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using solutions of known values.

Calibrated By	William Pak
Calibration Date	09/04/2024
Calibration Due	09/10/2024

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CHIPPING NORTON NSW 2170
T: +61 405 241 484 | +61 424 198 667
E: rentals@wamscientific.com.au
E: accounts@wamscientific.com.au

10/04/2024

Gas Calibration Certificate

Instrument GA5000
Serial No. G505859
Sensors CH4, O2, CO, H2S

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
Pump	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, Diaphragm	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	O2	✓	
	CH4	✓	
	H2S	✓	
	CO	✓	
Alarms	Beeper	✓	
	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
O2		20.90%		Fresh Air	21.20%
H2S		25ppm H2S	NIST	BC551908	25ppm
CO		100ppm CO	NIST	BC551908	100ppm
CH4		2.5% CH4	NIST	BC551908	2.5%

Calibrated By: **Hugh Scullin**

Calibration date: **10/04/2024**

Next calibration due: **7/10/2024**

WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Gas Detector

MiniRAE 3000

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	MiniRAE 3000 (PGM 7320)
Serial Number	592-912870
Client Name	Eric Serttas (AECOM Australia Pty Ltd)
Project Number	60709736 Task CDRL 400

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger and Power Supply	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Rubber Boot	Check	✓	Clean, no damage
Flexi Probe	Condition/Check	✓	No leaks, no damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Lamp and Sensor	Clean and Calibration	✓	Lamp and PID sensor cleaned and calibrated
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v2.20A

Instrument Readings					
Parameter	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
PID (10.6eV)	Isobutylene	100 ppm	WO383117-18	0 ppm	100.1 ppm

Declaration

WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.

Calibrated By	William Pak
Calibration Date	23/02/2024
Calibration Due	23/08/2024

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Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Gas Detector

MiniRAE 3000

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	MiniRAE 3000 (PGM 7320)
Serial Number	592-920878
Client Name	Eric Serttas/Fahim Rashid (AECOM Australia Pty Ltd)
Project Number	60709736 – CDRL 1100

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger and Power Supply	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Rubber Boot	Check	✓	Clean, no damage
Flexi Probe	Condition/Check	✓	No leaks, no damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Lamp and Sensor	Clean and Calibration	✓	Lamp and PID sensor cleaned and calibrated
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v2.20A

Instrument Readings					
Parameter	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
PID (10.6eV)	Isobutylene	100 ppm	WO249314-15	0 ppm	101.0 ppm

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.

Calibrated By	William Pak
Calibration Date	04/04/2024
Calibration Due	04/10/2024

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Certificate of Service and Calibration

Gas Detector

MiniRAE 3000

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	MiniRAE 3000 (PGM 7320)
Serial Number	592-928312
Client Name	Eric Serttas (AECOM Australia Pty Ltd)
Project Number	60709736 / CDRL 400-Asssment & Inv

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger and Power Supply	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Rubber Boot	Check	✓	Clean, no damage
Flexi Probe	Condition/Check	✓	No leaks, no damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Lamp and Sensor	Clean and Calibration	✓	Lamp and PID sensor cleaned and calibrated
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v2.20A

Instrument Readings					
Parameter	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
PID (10.6eV)	Isobutylene	100 ppm	WO383117-18	0 ppm	100.3 ppm

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.

Calibrated By	William Pak
Calibration Date	24/11/2023
Calibration Due	24/05/2024

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Certificate of Service and Calibration

Gas Detector

BW Max XT II

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	BW Max XT II
Serial Number	MA221-006567
Client Name	Eric Serttas (AECOM Australia Pty Ltd)
Project Number	60709736 Task CDRL 400
Comments	Brand new LEL sensor installed

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Sensors	Calibration	✓	Calibrated and conforms to manufacturer's specs
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v12.000

Instrument Readings					
Parameter	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
O_2	Fresh Air	20.9%	WO393358-8	20.9%	
	Oxygen	18.0%			18.0%
LEL	Methane	2.5% (50% LEL)	WO393358-8	0%	50%
CO	Carbon Monoxide	50 ppm	WO393358-8	0 ppm	50 ppm
H_2S	Hydrogen Sulfide	10 ppm	WO393358-8	0 ppm	10 ppm

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.

Calibrated By	William Pak
Calibration Date	23/02/2024
Calibration Due	23/08/2024

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WAMSCIENTIFIC
Your water and air monitoring equipment specialists

Certificate of Service and Calibration

Gas Detector

BW Max XT II

Company Name	WAM Scientific
Office Address	26 Bungarra Crescent, Chipping Norton NSW 2170
Phone Number	+61 405 241 484
Contact Name	William Pak
Instrument	BW Max XT II
Serial Number	MA221-007426
Client Name	Eric Serttas (AECOM Australia Pty Ltd)
Project Number	60709736 / CDRL 400-Asssment & Inv

Instrument Check			
Item	Test	Test Passed	Comments
Li-Ion Rechargeable Battery	Battery Charge and Drain	✓	Unit runs for > 8 hours on a full charge
Charger	Operation/Check	✓	No damage
Unit Display	Operation	✓	Screen visible, no damage
Keypad	Operation	✓	Responsive, no damage
Pump	Flow Check	✓	Flow rate > 0.5 L/min
Monitor Housing	Condition/Check	✓	No damage
Water Trap Filter	Visual Check	✓	Clean
Alarms	Audible, Visual, Vibration Check	✓	All modes of alarms are functional
Data Logger	Operation	✓	Unit records data, default set at 60 seconds
Sensors	Calibration	✓	Calibrated and conforms to manufacturer's specs
PCB	Operation	✓	Unit is fully functional
Firmware	Version	✓	v12.000

Instrument Readings					
Parameter	Calibration Gas	Concentration	Reference No.	Zero Reading	Span Reading
O_2	Fresh Air	20.9%	WO393358-8	20.9%	
	Oxygen	18.0%			18.0%
LEL	Methane	2.5% (50% LEL)	WO393358-8	0%	50%
CO	Carbon Monoxide	50 ppm	WO393358-8	0 ppm	50 ppm
H_2S	Hydrogen Sulfide	10 ppm	WO393358-8	0 ppm	10 ppm

Declaration
WAM Scientific certifies that the above instrument was successfully tested according to manufacturer's standards and all necessary checks were conducted to ensure the instrument was fully operational prior to dispatch. The calibration data supplied was obtained in accordance with manufacturer's specifications using gases of known concentrations.

Calibrated By	William Pak
Calibration Date	24/11/2023
Calibration Due	24/05/2024

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PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-113991

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	1000ppm	N/A	N/A
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NATA	SY-I13		98.4 ppm

Calibrated by: **Sara Angelini**

Calibration date: **18/04/2024**

Next calibration due: **18/05/2024**

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 23E102259

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00		419529	7.02
2. pH 4.00 (pH)		pH 4.00		414104	3.98
3. ORP (mV)		240.44		420151/398193	240.4
4. EC (mS)		2760		424499	2762
5. D.O		0.0%		407802	0.0%
6. Temp (°C)		19.8		MultiTherm	19.6

Calibrated by: Eliza Anwar

Calibration date: 19/04/2024

Next calibration due: 19/05/2024

Gas Calibration Certificate

Instrument GA5000
Serial No. G505864
Sensors CH4, O2, CO, H2S, CO2

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
Pump	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, Diaphragm	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	O2	✓	
	CH4	✓	
	H2S	✓	
	CO	✓	
	CO2	✓	
Alarms	Beeper	✓	
	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
O2		20.90%		Fresh Air	20.90%
H2S		25ppm H2S	NATA	SY396	25 ppm
CO		100ppm CO	NATA	SY396	100 ppm
CH4		60% CH4	NATA	SY448	60.0%
CO2		40% CO2	NATA	SY448	40% CO2

Calibrated By: **Alex Buist**

Calibration date: **22/04/2024**

Next calibration due: **22/05/2024**

eurofins | Environment Testing

Sampling equipment order form

Order Number				
ATO842	Company	AECOM NSW	Contact Name	Eric Serttas
	Job No #	-	Email Address	Eric.serttas@aecom.com
	Phone Number	0419 167 685	Date required	11 Apr 2024
	Lab Pickup		Delivery Address	Wyong, 210 Pacific Highway, Wyong

MYTX138797

1L PASSIVATED CANISTER

Quantity	Canister Volume	Flow Rate Sampling Interval (Flow Rates)
7	1L	40mL/min (20min)

6L PASSIVATED CANISTER

Quantity	Canister Volume	Flow Rate Sampling Interval (Flow Rates) / Certification
	6L	

PASSIVE SAMPLERS - RAD145®

Quantity	Item
	RAD145® - Thermal Desorption, Yellow Diffusion Body, Support Plate
	Outdoor Shelter

ACTIVE SAMPLERS - TO17

Quantity	Item
	TO-17 Thermal Desorption Tube

SUMMA CANISTER - ACCESSORIES

Quantity	Item
2	Duplicate T-piece
	2-Propanol (40 mL)
7	1/4" Swagelok nuts + Ferrules
7	Quick Connects
	3-Way Valve
	Additional Pressure Gauge
	Triplicate t-piece
	6mm tubing (1m per canister)

Equipment List

Certification Number	Canister ID	Flow Controller ID	Integrity Check
1083057	IL0015	323	✓
	IL0244	374	✓
	IL0203	415	✓
	IL0101	407	✓
	IL0212	286	✓
	IL0179	355	✓
	IL0059	275	✓

Additional Requests

Appendix E

Data validation

AECOM Imagine it. Delivered.

DATA VALIDATION REPORT - SOIL

Project Manager:	James Jentz	**Validation by:**	Marcelo Frederico
Project Number:	60709736	**Date:** 19/08/2024	
Site:	Wyong Town Centre		
Matrix:	Soil	**Data Verified by:**	Kate McGrath
Laboratory:	ALS, Eurofins, Envirolab	**Date:** 13/10/2024	

Lab reference:

ALS (primary laboratory)

ES2337379	ES2401099-AA	ES2410231
ES2341301	ES2401671	ES2410544
ES2341790	ES2402822	ES2410587
ES2343534	ES2406391	ES2410959
ES2343795	ES2407037	ES2411530
ES2343853	ES2407462	ES2411715
ES2343854	ES2408075	ES2411748
ES2344222	ES2408767	ES2413882
ES2344223	ES2409354	ES2414454
ES2344243	ES2409690	ES2415351
ES2344549	ES2409702	ES2409815
ES2344556	ES2409727	
ES2344603	ES2409761	
ES2344617	ES2409765	
ES2344707	ES2409806	
ES2400855	ES2409869	

Eurofins (secondary laboratory)

1056637	1084489	1081737
1081719	1084494	1083748
1081731	1087307	1096015
1084238	1087305	
1084484	1081719	

Envirolab (coal tar samples)

340861	346059	346507
347486	347629	347630
348062	348066	348767

Key Findings:

- When using the PFAS soil data quantitatively it should be taken consideration PFAS detections have not been assessed against field blank data.
- The potential for under reporting of concentrations must be considered when using the data quantitatively and assessing against the relevant assessment criteria due to some batches received at temperatures above the recommended storage temperature of <6°C.
- Some samples were extracted and analysed outside recommended holding times. There is the potential for these analytes to have degraded over time and not be truly representative of field conditions. This potential under reporting should be taken into consideration when interpreting data for these analytes.

Component	Outliers			Material impact on interpretation
	No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)		✓	1	Yes
Number of tests requested/reported		✓	2	No
Sample handling/preservation/holding times		✓	3	Yes

Frequency of laboratory QA/QC (≤ assessment criteria)			✓	4	No
Limits of reporting (LOR)			✓	5	No
Blank analysis	Field blank (DQI limit - <LOR)		✓	6	No
	Rinsate blank (DQI limit - <LOR)		✓	7	No
	Trip blank (DQI limit - <LOR)	✓			No
	Method blank (DQI limit - <LOR)	✓			No
Field intra-laboratory relative percent differences (RPDs) (DQI limit - <30%)			✓	8	No
Field inter-laboratory RPDs (DQI limit - <30%)			✓	9	No
Laboratory duplicate RPDs (DQI limit - <30%)			✓	10	No
Matrix spike (MS) % recoveries (DQI limit - 70-130%)			✓	11	No
Laboratory control spike (LCS) % recoveries (DQI limit – 70-130% or laboratory specific recovery range)		✓			No
Surrogate % recoveries (DQI limit – 70-130% or laboratory specific recovery range)			✓	12	No
Other observations		✓			No

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Comments	
1. Frequency of field QA/QC	**Field duplicates** Field intra and inter-laboratory were collected at the required rate of at least 1 per 10 samples for PFAS and 1 per 20 samples for all contaminants of concern except for OCPs, OPPs, PCBs and cyanide where no intra or inter-laboratory duplicates were analysed. OCPs, OPPs, PCBs and cyanide were not detected above the LOR. The accuracy of the data can be assessed as acceptable based on matrix spike, surrogate and LCS samples which were reported at or above the required frequency and within control limits. It is noted that field duplicate samples QC100 (intra-laboratory sample) and QC200(inter-laboratory sample) from lab report ES2344549 were collected from the sampling location A-BH06 but from different depths. Intra-laboratory sample could not be analysed due to the QC100 could not be located by the primary laboratory. **Rinsates** Soil sampling for contamination analysis was completed on a total of 42 days and rinsate samples were collected on 26 of those days. The rinsate sampling rate of one per day of sampling was not met, however a total of 30 rinsate samples were collected as some days multiple rinsate samples were collected due to more than one sampling crew operating. The non-conformance does not impact the interpretation of the data for the purposes of the assessment. There is a sufficient amount of rinsate data to demonstrate decontamination procedures and cross contamination prevention of samples was sufficient for the purpose of the investigation. **Trip blanks and spikes** A total of 33 batches with soil samples for volatile analysis were delivered to the laboratory. A total of 16 batches had trip blank samples and 20 had trip spike samples. 13 batches out of 33 were submitted without trip blank or spikes (ES2341790, ES2342378, ES2343534, ES2344223, ES2344549, ES2344617, ES2344707, ES2409354, ES2409690, ES2409765, ES2410231, ES2411715 and ES2413882) and did not meet the requirement of one per batch. **Field blanks** PFAS field blanks were required for the 10 batches with soil samples for PFAS analysis (ES2343853, ES2343854, ES2344222 , ES2344603 , ES2406391 , ES2408158 , ES2409702 , ES2409806 , ES2411530, ES2411748). No field blanks were submitted due to an oversight. As PFAS concentrations were detected well below the adopted assessment criteria and at or just above the laboratory LOR there is no impact on the interpretation of the data. PFAS were also not detected above the laboratory LOR in rinsate samples analysed. When using the PFAS soil data quantitatively it should be taken consideration PFAS detections have not been assessed against field blank data.

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Comments	
2. Number of tests requested/reported	Samples were analysed and reported as requested on the chain of custody (COC), except for: ALS: ES2409765 Sample 6, 20240322-R-BH16A-0.4-0.6 was not analysed for asbestos, as no bag was received. ALS: ES2411748 Sample 15 was not analysed for PFAS, as no PFAS jar was received. *ACM-TP15 location was sampled however analysis was not requested due to oversight. ALS: ES2409806 Sample 7, BH26(B)_0.4-0.5 was not analysed for asbestos as no bag was received. ALS: EB2411878 BH02_0.5-1.0, was not analysed as it was not received at the laboratory.

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3. Sample handling/ preservation/ holding times	**Handling/preservation** Batches of samples received above the recommended temperature (≤6°C) by the laboratories are listed below, along with the lab recorded temperatures and sampling locations affected. The sample receipt notices (SRNs) noted that "ice present' or "ice bricks present" for attempt of cooling in all batches except for ES2344617 and ES2401099. The potential for under reporting of concentrations must be considered when using the data quantitatively and assessing against the relevant assessment criteria. ALS: ES2341301 (A-BH15) (10.8°C, 10.7°C, 9.3°C – ice present). ALS: ES2341790 (A-BH13, A-BH14, A-BH16B and R-BH20B) (9.7°C, 9.0°C, 7.4°C). ALS: ES2343534 (A-BH09, BH25 and R-BH34) (7.0°C, 8.2°C, 9.4°C– ice present). ALS: ES2343795 (R-BH26A and R-BH27A) (14.0°C, 18.0°C, and 17.1°C) ALS: ES2343853 (BH09) (6.0°C, 8.2°C, 10.2°C – ice bricks present) ALS: ES2343854 (A-BH03, ACM-1, ACM-2, ACM-TP09 and R-BH30) (16.4°C, 17.2°C, 15.9°C – ice bricks present) ALS: ES2344222 (ACM-BH12, ACM-TP13, ACM-TP17 and R-BH36) (6.3°C, 8.3°C, 5.8°C – ice bricks present) ALS: ES2344223 (R-BH29) (6.3°C, 8.3°C, 5.8°C – ice present) ALS: ES2344549 (A-BH06) (13.9°C, 12.0°C, 15.9°C – ice present). ALS: ES2344603 (ACM-BH12A, ACM-TP18, A-TP13 and R-BH35) (11.8°C, 11.5°C, 12.6°C – ice present). ALS: ES2344617 (ACM-BH05) (14.0°C, 18.0°C, 17.1°C). ALS: ES2410959 (BH02) (0.0°C, 0.2°C, 11.3°C – ice present). ALS: ES2344243 (R-BH29) (14.0°C, 17.0°C, 17.3°C – ice present). ALS: ES2413882 (HA56 and HA57) (17.4°C – ice present). ALS: ES2337379 (ACM-TP03, ACM-TP05 and ACM-TP08) (11.5°C, 0.5°C, -1.2°C – ice present). ALS: ES2401099 (rinsate QC300_20231105) (31.4°C, 28.9°C, 31.3°C). Eurofins: 1056637 (6.8°C) Eurofins: 1084238 (14.6°C) Eurofins: 1084489 (8.6°C) Eurofins: 1083748 (6.7°C) Eurofins: 1096015 (14.6°C) Eurofins: 1087305 (20.0°C) Eurofins: 1087307 (20.0°C)

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Eurofins: 1084494 (8.6°C)

Eurofins: 1087307 (20.0°C)

Holding times
Samples extracted and analysed outside recommended holding times are listed below by laboratory report. There is the potential for these analytes to have degraded over time and not be truly representative of field conditions. This potential under reporting should be taken into consideration when interpreting data for these analytes.

Analysis for pH was unable to be completed within the allotted holding time of 6 hrs in most samples. The analytical data is deemed to be a true representation of the groundwater in the monitoring wells as the field and laboratory pH analysis is consistent.

ALS: ES2341301: Samples were extracted and analysed marginally outside recommended holding times for A_BH15_1.5-1.6 (soil matrix) for pH (7 days); QC300_20231127 and QC300_20231128 (water matrix, rinsate samples) for Total Petroleum Hydrocarbons, and Total Recoverable Hydrocarbons (TRHs) (4 and 3 days respectively).

ALS: ES2341790:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH	A-BH13_2.0-2.2 A-BH14_2.0-2.2	4	-
	A-BH20B_1.5-1.6	5	-
Moisture Content	A-BH16B_0.5-0.6 A-BH16B_1.5-1.6 QC100_011223 QC200_011223	-	7
	A-BH16B_0.1-0.2	-	52
Mercury	A-BH16B_0.1-0.2	39	39
PCBs	A-BH16B_0.5-0.6	7	-
OCPs/OPPs	A-BH16B_0.5-0.6	7	-
	QC300_20231201	46	-
Phenolic Compounds	A-BH16B_0.5-0.6	7	-
	QC300_20231201	6	-
PAHs	A-BH16B_0.5-0.6 A-BH16B_1.5-1.6 QC100_011223 QC200_011223	7	-
	QC300_20231201	6	-
vTRH/TPH/BTEX N	A-BH16B_0.5-0.6 A-BH16B_1.5-1.6 QC100_011223 QC200_011223	7	14

ALS: ES2343534:Samples were extracted and analysed marginally outside recommended holding times for three samples collected from BH25 (soil matrix) for Nitrite as N; QC300_20231206 (water matrix, rinsate samples) for Polynuclear Aromatic Hydrocarbons (PAHs) and TPH/TRH.

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ALS: ES2402822: The moisture content was 43 days overdue and mercury was 33 days overdue for analysis. The moisture content does not have any impact on the data interpretation as it is not a contaminant of concern. The mercury concentration was recorded below the LOR which was 40 times below than the most conservative criteria (NSW EPA Waste Classification Guideline (2014), CT1 criteria).

ALS: ES2343795: Samples were extracted and analysed outside recommended holding times (6 days) for trip blank sample for TRH/TPH; trip blank and trip spike samples and BTEXN method groups. Also, the holding time exceedances (4 days) occurred for the rinsate sample (QC300_20231208) for PCBs, OCPS, OPPs, phenolic compounds, PAHs, TRH and TPH.

ALS: ES2343854:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
VHCs	A-BH03_0.7-0.8	8	8
	A-BH03_2.0-2.1	8	9
PAHs/Phenolic Compounds	A-BH03_0.7-0.8, A-BH03_2.0-2.1	1	-
vTRH/TPH/BTEXN	A-BH03_0.7-0.8	1	1
	A-BH03_2.0-2.1	1	2

ALS: ES2344222:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
VHCs	R_BH36_1.0-1.1	3	4
vTRH/TPH/BTEXN	Trip Blank	4	5
P080: BTEXN	Trip Spike	4	4

ALS: ES2344223:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
Moisture Content	R-BH29_0.0-0.2	-	1
Moisture Content	R-BH29_0.9-1.0	-	6
PCB, OCP, OPP, phenolic compounds, PAHs	R-BH29_0.0-0.2 R-BH29_0.9-1.0	1	-
vTRH/TPH/BTEXN	R-BH29_0.0-0.2 R-BH29_0.9-1.0	1	2

ALS: ES2344549:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
VHCs	A-BH06_1.0-1.2	-	1

ALS: ES2344617:

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Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
Moisture Content	ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	-	6
PCB, OCP, OPP, phenolic compounds, PAHs, TPH/TRH	ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	1	-
vTRH/TPH/BTEXN	ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	1	8

ALS: ES2409702:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
VHCs	BH30_0.4-0.5, BH30_0.9-1.0	2	4
vTPH/TRH	Trip Blank	8	9
BTEXN	Trip Blank, Trip Spike, TSC	8	9

ALS: ES2409727:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
vTRH/TPH	Trip Blank	8	9
BTEXN	Trip Blank, Trip Spike, TSC	8	9

ALS: ES2410544:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
PAHs/TRH/TPH	QC300_20240325	3	-
	QC300_20240327	1	-

ALS: ES2410587:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
VHCs	BH28_0.3-0.4, BH28_2.8-2.9, BH29_0.4-0.5, BH29_1.7-1.8	2	2
vTRH/TPH	Trip Blank	3	3
BTEXN	Trip Blank, Trip Spike - 17	3	3
BTEXN	Trip Control Spike - 17	3	4
PAHs, TRH/TPH	QC300_20240326	2	-

ALS: ES2415351:

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Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)	HA56_0.3-0.4	41	-

ALS: ES2413882:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
Moisture Content (Dried @ 105-110°C)	HA56_0.3-0.4, HA57_0.3-0.4	-	33
Total Recoverable Mercury by FIMS	HA56_0.3-0.4, HA57_0.3-0.4	19	22
PAHS/TRH/TPH	HA56_0.3-0.4, HA57_0.3-0.4	32	-
vTRH/TPH/BTEXN	HA56_0.3-0.4, HA57_0.3-0.4	31	31
Total Recoverable Hydrocarbons - NEPM 2013 Fractions	HA56_0.3-0.4, HA57_0.3-0.4	32	-

ALS: ES2337379:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH 1:5 (Soils), Conductivity (1:5)	ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	5	-
pH 1:5 (Soils)	ACM-TP08_0.5-0.6	4	-
Conductivity (1:5)	ACM-TP08_0.5-0.6	4	-
MAHs/VHCs	ACM-TP05_0.1-0.2	3	4
MAHs/VHCs	ACM-TP03_0.5-0.6	3	5
MAHs/VHCs	ACM-TP08_0.5-0.6	2	3
TPH/TRH	Trip Blank	1	2
BTEXN	Trip Blank, Trip Spike 15, Trip Spike Control 15	1	2

ALS: ES2401099:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH 1:5 (Soils) and Conductivity (1:5)	ACM_BH09_SPT_2.0, A_BH09_SPT_1.5-1.95, A_BH09_SPT_3.0-3.45, R_BH34_SPT_4.5-4.95, R_BH34_SPT_3.0-3.45	28	-
Moisture Content (Dried @ 105-110°C)	ACM_BH09_SPT_2.0, A_BH09_SPT_1.5-1.95, A_BH09_SPT_3.0-3.45,	-	21

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Comments

	R_BH34_SPT_4.5-4.95, R_BH34_SPT_3.0-3.45		
Soluble Sulfate by ICPAES and Chloride by Discrete Analyser	ACM_BH09_SPT_2.0, A_BH09_SPT_1.5-1.95, A_BH09_SPT_3.0-3.45, R_BH34_SPT_4.5-4.95, R_BH34_SPT_3.0-3.45	7	-
Total Recoverable Mercury by FIMS	QC300_20231105, QC300_20231205	-	8
TRH/TPH	QC300_20231105, QC300_20231205	26	-
vTRH/TPH/BTEX N	QC300_20231105, QC300_20231205	20	20

ALS: ES2409354:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH 1:5 (Soils)	240308_BH04A_2.4-2.5m	7	-
VHCs	240308_BH04A_0.4-0.5m, 240308_BH04A_1.4-1.5m	6	7
PAHs, TRH/TPH	QC300_240308	6	-

ALS: ES2401671:

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)	A-BH09_0.5-0.6	31	-
	ACM-BH05_0.9-1.0	29	-
	R_BH36_0.5-0.6	18	-

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Comments	
4. Frequency of Laboratory QA/QC	ALS: ES2341301, ES2401099 Laboratory duplicate and matrix spike samples were not reported for TRH – semi-volatile fraction in water matrix samples (rinsate samples). ALS: ES2414454, ES2415351, ES2401671 Laboratory duplicate and matrix spikes samples were not reported for PAH/Phenols in water matrix samples (leachate samples). The accuracy of the data can be assessed as acceptable based on method blanks and LCS (which were reported at or above the required frequencies and within control limits). ALS: ES2341790 Laboratory duplicate and matrix spike samples were not reported for pesticides in water matrix samples (rinsate sample). As the assessment is of soil there is no impact on the assessment. The accuracy of the data can be assessed as acceptable based on method blanks, LCS (which were reported at or above the required frequencies and within control limits). ALS: ES2343534, ES2344222, ES2344549, ES2408075, ES2409765, ES2409806, ES2409869, ES2410231, ES2410544, ES2410587, ES2410959, ES2411530, ES2409354, ES2343795, ES2344603 Laboratory duplicate and matrix spike samples were not reported for TRH – semi-volatile fraction, and PAH/ phenols in water matrix samples (rinsate samples). As the assessment is of soil there is no impact on the assessment. The accuracy of the data can be assessed as acceptable based on method blanks, LCS (which were reported at or above the required frequencies and within control limits). ALS: ES2402822, ES2408158 Laboratory duplicate sample frequency for moisture content was reported below the expected rate. The moisture content does not have impact on the data interpretation for this assessment. ALS: ES2337379 Matrix spikes were not reported at the required frequencies for Total Metals in soil matrix samples (rinsate samples). As the assessment is of soil there is no impact on the assessment. The accuracy of the data can be assessed as acceptable based on method blanks and LCS results (which were reported at or above the required frequencies and within control limits). ALS: ES2406391 Laboratory duplicate and matrix spike samples were not reported for total mercury and total metals in soil matrix samples. The precision of the data can be assessed as acceptable based on field duplicate relative percent difference (RPDs) and the accuracy of the data can be assessed as acceptable based on method blanks and LCS (which were reported at or above the required frequencies and within control limits). Laboratory duplicate and matrix spike samples were not reported for PAHs, phenols, pesticides, PCB, and TRH – semi-volatile fraction in water matrix samples (rinsate samples). As the assessment is of soil there is no impact on the assessment. The accuracy of the data can be assessed as acceptable based on method blanks and LCS results (which were reported at or above the required frequencies and within control limits).

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Comments	
5. Limits of reporting	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of: • Vinyl chloride: criteria 4 mg/kg (NSW EPA [2014] contaminant threshold for general solid waste)/ LOR 5 mg/kg and criteria 1.7 mg/kg (US EPA regional screening levels for industrial soil/LOR 5 mg/kg • Cadmium: criteria 0.5 mg/kg (NSW 2014 Excavated Natural Material Order maximum average)/ LOR 0.4 to 1 mg/kg • 1,2-Dibromoethane (EDB): criteria 0.16 mg/kg (US EPA Regional Screening Levels (RSLs) for industrial soil/<0.5 mg/kg • Bromomethane: criteria 3 mg/kg (US EPA RSLs for industrial soil/5mg/kg • Trans-1,4-Dichloro-2-butene: criteria 0.032 mg/kg (US EPA RSLs for industrial soil/<0.5 mg/kg • cis-1,4-Dichloro-2-butene: criteria 0.032 mg/kg (US EPA RSLs for industrial soil/<0.5 mg/kg • 1,2-Dibromo-3-chloropropane: criteria 0.064 mg/kg (US EPA RSLs for industrial soil/<0.5 mg/kg • 1,2,3-Trichloropropane: criteria 0.11 mg/kg (US EPA RSLs for industrial soil/<0.5 mg/kg • Hexachlorocyclopentadiene: criteria 0.75 mg/kg (US EPA RSLs for industrial soil/<0.5 mg/kg The potential exists for concentrations of the above the adopted guideline, but below the laboratory LOR. The LOR was adopted as the assessment criteria for VOCs where the US EPA RSL criteria was less than the LOR.
6. Field blank	Field blank samples were not collected during the fieldwork due to oversight. No detected recorded in the rinsate sample collected from the date of the fieldwork. This outlier does not have any impact on the evaluation.
7. Rinsate blank	Concentrations were detected above the LOR in the following rinsate samples: • QC300_20231218 (ES2344222): trichloromethane (chloroform) – 8 µg/L • QC300_20231221 (ES2344603): zinc – 0.02 mg/L • QC300_20231105 (ES2401099): chromium – 0.002 mg/L Trichloromethane was not detected in soil samples therefore the detection in rinsate is not of concern. Zinc and chromium were well below the adopted soil assessment criteria in all samples analysed therefore the detections in rinsate are not of concern.

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Comments	
8. Field intra/inter-laboratory duplicate RPDs	Field intra and inter-laboratory duplicate RPDs were generally reported within control limits. RPDs over 30% are listed below. ALS: ES2341790 • QC100 (intra-lab duplicate of A-BH16B_0.1-0.2- arsenic (%48), chromium (%32). However reported concentrations were below 10 times LOR. • QC200 (inter-lab of A-BH16B_0.5-0.6) - chromium (%31), and nickel (%53). • Field inter-laboratory sample (QC200_011223) was submitted to the primary laboratory for analysis due to oversight and analysed by the primary laboratory. ALS: ES2409869 • QC100_20240321 (intra-lab duplicate of R-TP07_0-0.1) – TRH >C10-C40 (100%) • QC200_20240321 (intra-lab duplicate of R-TP07_0-0.1) – PAHs (113%), copper (95%), lead (122%) and zinc (149%) • QC200_20240321 (inter-lab duplicate of R-TP07_0-0.1) – PAHs (113%), arsenic (82%), copper (95%), lead (115%) and zinc (143%) • QC200_20240322 (inter-lab duplicate of BH35_0.3-0.4) – TPH C10-C36 (108%), benzo(b&j)fluoranthene (86%), phenol (82%), phenol (82%), ALS: ES2409806 • QC100_20240324 (intra-lab duplicate of BH26_1.5-1.6) – zinc (38%) • QC200_20240324 (inter-lab duplicate of BH26_1.5-1.6) - TRH>C34-40 (109%), TPH C10-C36 (73%), PAHs (83%), benzo(a)pyrene TEQ half (80%), ALS: ES2411748 • QC100_20240408 (intra-lab duplicate of ACM-TP19_2.8-2.9) – chromium (62%), nickel (157%) ALS: ES2411530 • QC200_20240408 (inter-lab duplicate of BH06_2.0-2.5) – zinc (96%) The elevated RPDs all corresponded to concentrations less than 10 times the laboratory LOR. The precision and accuracy of the data is considered acceptable based on the intra-laboratory and inter-laboratory duplicate results respectively.

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Comments	
9. Laboratory duplicate RPDs	Laboratory duplicate RPD results exceeding the control limits are listed below. ALS: ES2341790 Laboratory duplicate RPDs were within control limits, with the exception of lead (51.4%) which was reported outside the control limit of 0-20%. The laboratory duplicate was used another project and was not related with this laboratory report. The field duplicate results (QC100, and QC200) were compared with the primary samples and lead concentration RPDs were below than 20%. ALS: ES2343853 Laboratory duplicate RPDs were within control limits, with the exception of TRH – C6-C10 fraction (94.5 %) which was reported outside the control limit of 0% - 50%. As all concentrations of TRH C6-C10 fraction were reported well below the adopted guidelines, the elevated RPD is not considered to affect the interpretation of results against guidelines. The laboratory duplicate was used another project and was not related with this laboratory report. ALS: ES2337379 Laboratory duplicate RPDs were within control limits, with the exception of zinc (43.5%) which was reported outside the control limit of 0-20%. Eurofins: 1083748 • Copper (84%) in sample S24-Ap0004991 • Mercury (67%) in sample S24-Ap0004991 • Nickel (85%) in sample S24-Ap0004991 RPD Duplicates acceptance criteria is ≤30% however, results remained between 10-20 times the limit of reporting (LOR) (RPD must lie between 0-50%), passing the laboratory QC. Eurofins: 1087307 • TRH C15-C28 (42%) in sample N24-Ap0033296 • Arsenic (73%) in sample S24-Ap0033365 RPD duplicates acceptance criteria is ≤30% however, results remained between 10-20 times the LOR (RPD must lie between 0-50%), passing the laboratory QC. Eurofins: 1081719 • Arsenic (42%) in sample S24-Ma0060491 RPD Duplicates Acceptance Criteria is ≤30% however, results remained between 10-20 times the LOR (RPD must lie between 0-50%), passing the laboratory QC. Eurofins: 1087305 • Anthracene (74%) in sample S24-Ap0046479 • Benz(a)anthracene (66%) in sample S24-Ap0046479 • Benzo(a)pyrene (78%) in sample S24-Ap0046479 • Benzo(b&j)fluoranthene (85%) in sample S24-Ap0046479 • Benzo(g.h.i)perylene (79%) in sample S24-Ap0046479 • Benzo(k)fluoranthene (52%) in sample S24-Ap0046479 • Chrysene (74%) in sample S24-Ap0046479 • Fluoranthene (62%) in sample S24-Ap0046479 • Indeno(1.2.3-cd)pyrene (83%) in sample S24-Ap0046479 • Phenanthrene (45%) in sample S24-Ap0046479 • Pyrene (65%) in sample S24-Ap0046479 • Arsenic (73%) in sample S24-Ap0046479 RPD Duplicates acceptance criteria is ≤30% however, results remained between 10-20 times the LOR (RPD must lie between 0-50%), passing the laboratory QC.

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10. Matrix spike (MS) % recoveries

Matrix spike recoveries (where reported) were within control limits, with the following exceptions:

ALS: ES2343795

Analyte	Sample	Recovery (%)	Range (%)	Comment
Copper	Anonymous	51.8	70.0-130	Recovery less than lower data quality objective

As the sample was not from the project the result does not give an indication of accuracy related to the soil sample matrix.

ALS: ES2343854

Analyte	Sample	Recovery (%)	Range (%)	Comment
PFAS	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels

As the sample was not from the project the result does not give an indication of accuracy related to the soil sample matrix. Also the non-determinations (ND) do not reflect method bias and do not affect data interpretation.

ALS: ES2407037

Analyte	Sample	Recovery (%)	Range (%)	Comment
Arsenic	Anonymous	58.6	70-130	Recovery less than lower data quality objective
Cadmium	Anonymous	53.8	70-130	Recovery less than lower data quality objective
Chromium	Anonymous	#ND	68-132	Background levels were greater than or equal to 4x spike levels
Copper	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels
Nickel	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels
Zinc	Anonymous	#ND	66-133	Background levels were greater than or equal to 4x spike levels

As the sample was not from the project the result does not give an indication of accuracy related to the soil sample matrix. Also the non-determinations (ND) do not reflect method bias and do not affect data interpretation.

ALS: ES2410544

Analyte	Sample	Recovery (%)	Range (%)	Comment
Copper	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels
Zinc	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels

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Comments

As the sample was not from the project the result does not give an indication of accuracy related to the soil sample matrix. Also the non-determinations (ND) do not reflect method bias and do not affect data interpretation.

ALS: ES2410587

Analyte	Sample	Recovery (%)	Range (%)	Comment
Copper	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels
Zinc	Anonymous	#ND	70-130	Background levels were greater than or equal to 4x spike levels

As the sample was not from the project the result does not give an indication of accuracy related to the soil sample matrix. Also the non-determinations (ND) do not reflect method bias and do not affect data interpretation.

ALS: ES2337379

Analyte	Sample	Recovery (%)	Range (%)	Comment
Fluoride	ACM-TP03 _0.5-0.6	65.9	70-130	Recovery less than lower data quality objective

Fluoride in sample ACM-TP03_0.5-0.6 may be slightly higher than reported due to matrix interference in the sample. As this is not a contaminant of concern there is no impact on the assessment.

ALS: ES2409354

Analyte	Sample	Recovery (%)	Range (%)	Comment
Naphthalene	BH04A_ 0.4-0.5	145	70-130	Recovery greater than upper data quality objective

Naphthalene in sample BH04A_0.4-0.5 may be lower than reported based on the matrix spike result. As the sample result was less than the adopted assessment criteria there is no impact on the assessment.

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Comments

11. Surrogate % recoveries

Surrogate spike recoveries were within control limits, with the exception of those listed below.

ALS: ES2341301

Lab Method & Surrogate	Sample ID	Recovery (%)	Limit (%)	Comment
EP080: Toluene-D8	QC300_20231127	75.2	75.3-131	Recovery less than lower data quality objective

The surrogate recovery for toluene was slightly below the minimum recovery limit in the rinsate sample QC300_20231127. However, toluene was not detected in any primary soil samples so there is no impact on the assessment.

ALS: ES2343534

Lab Method & Surrogate	Sample ID	Recovery (%)	Limit (%)	Comment
EP080: Toluene-D8	QC300_20231127	75.2	75.3-131	Recovery less than lower data quality objective

The surrogate recovery for toluene was slightly below the minimum recovery limit in the rinsate sample QC300_20231127. However, toluene was not detected in any primary soil samples.

ALS: ES2408075

Lab Method & Surrogate	Sample ID	Recovery (%)	Limit (%)	Comment
EP075: Anthracene -D10	BH41_0.8-1.0	65.6	66-128	Recovery less than lower data quality objective

The surrogate recovery for PAHs was slightly below the minimum recovery limit, however as there was only onesamples out of all samples below the limit there is no impact on interpretation of the data.

ALS: ES2409702

Lab Method & Surrogate	Sample ID	Recovery (%)	Limit (%)	Comment
EP075(SIM)T: 2-Fluorobiphenyl	HA59_0.6-0.7	69.1	70.0-122	Recovery less than lower data quality objective

The surrogate recovery for phenols was slightly below the minimum recovery limit, however as there were only two samples out of all samples below the limit there is no impact on interpretation of the data.

ALS: ES2409806

Lab Method & Surrogate	Sample ID	Recovery (%)	Limit (%)	Comment
EP075(SIM)S: 2.4.6-Tribromophenol	BH26_1.1-1.2	32.9	40.0-138	Recovery less than lower data quality objective

The surrogate recovery for phenols was slightly below the minimum recovery limit, however as there were only two samples out of all samples below the limit there is no impact on interpretation of the data.

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DATA VALIDATION REPORT - GROUNDWATER

Project Manager:	James Jentz	**Validation by:**	Marcelo Frederico
Project Number:	60709736 / CDRL 400	**Date:** 19/08/2024	
Site:	Wyong Town Centre		
Matrix:	Water	**Data Verified by:**	Kate McGrath
Laboratory:	ALS (primary) and Eurofins	**Date:** 13/10/2024	
Lab reference:	**ALS** ES2412153 ES2413389 **Eurofins** 1089086	 ES2411585 ES2411983	

Key Findings:

- Where pH holding times were not be met (BH01, A-BH03, A-BH06, BH29, BH42, R-BH37) pH field readings should be used when using the data quantitatively.
- The limit of reporting (LOR) exceeding the criteria for benzo(a)pyrene, vinyl chloride, and bromochlorine should be taken into consideration when interpreting the groundwater results against the adopted assessment criteria for recreational receptors.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)			✓	1	No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	2	No
Frequency of laboratory QA/QC			✓	3	No
Limits of reporting (LOR) (≤ assessment criteria)			✓	4	No
Blank analysis	Field blank (DQI limit - <LOR)	✓			No
	Rinsate blank (DQI limit - <LOR)	✓			No
	Trip blank (DQI limit - <LOR)	✓			No
	Method blank (DQI limit - <LOR)	✓			No
Field intra-laboratory relative percent differences (RPDs) (DQI limit - <30%)			✓	5	No
Field inter-laboratory RPDs (DQI limit - <30%)			✓	6	No
Laboratory duplicate RPDs (DQI limit - <30%)			✓	7	No
Matrix spike (MS) % recoveries (DQI limit - 70-130%)			✓	8	No
Laboratory control spike (LCS) % recoveries (DQI limit – 70-130% or laboratory specific recovery range)		✓			No
Surrogate % recoveries (DQI limit - (DQI limit – 70-130% or laboratory specific recovery range)		✓			No
Other observations		✓			No

Comments	
1. Frequency of field QA/QC	As per project specifications, a per- and polyfluoroalkyl substance (PFAS) field blank was not collected and analysed. PFAS compounds were detected well below the adopted assessment criteria in the primary and duplicate samples, therefore the absence of field blanks for PFAS has no implications on the interpretation of the data. A rinsate sample was not collected for the sampling day of the 12 April 2024 when GW28 was sampled. As rinsate samples were collected on all other groundwater sampling dates and the rinsate results were all less than the laboratory LOR. All other field QA/QC met the required frequencies.

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2. Sample handling/ preservation/ holding times

Holding times – samples were extracted and analysed marginally outside recommended holding times laboratory reports and samples:

ALS: ES2411585

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH by PC Titrator	BH01, A-BH06	-	1
pH by PC Titrator	BH42	-	5
Total Petroleum Hydrocarbons	Trip Blank	3	3
Total Recoverable Hydrocarbons - NEPM 2013 Fractions	Trip Blank	3	3
BTEXN	Trip Blank	3	3

ALS: ES2411983

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
Total Petroleum Hydrocarbons	Trip Blank	7	7
Total Recoverable Hydrocarbons - NEPM 2013 Fractions	Trip Blank	7	7
BTEXN	Trip Blank	7	7

ALS: ES2412153

Analyte	Samples	Days Overdue Extraction	Days Overdue Analysis
pH by PC Titrator	A-BH03	-	8
pH by PC Titrator	BH29, R-BH37	-	7
Total Petroleum Hydrocarbons	Trip Blank	8	8
Total Recoverable Hydrocarbons - NEPM 2013 Fractions	Trip Blank	8	8
BTEXN	Trip Blank	8	8

Where pH holding times were not be met, pH field readings should be used when using the data quantitatively. The trip blank results could be under reported due to holding time exceedances, however this does not impact on the interpretation of the primary results.

Handling/preservation

ALS: ES2413389

Sample receipt temperatures (9.2°C, 7.0°C, 8.1°C – ice present) were outside of the recommended range (≤6°C) (samples BH26_SV1(S) and QC300_20240423). However, it was mentioned that “ice present’ for attempt of cooling. As the temperature was only marginally above the recommended range there is not considered to be a material implication on the interpretation of the data for the two samples in the batch.

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Comments

3. Frequency of Laboratory QA/QC	<u>ALS: ES2411585 and ES2413389</u> Laboratory duplicate and matrix spike samples were not reported for TRH semi-volatile fraction, and PAH/ phenols . The precision of the data can be assessed as acceptable based on the intra-laboratory duplicate results and the accuracy of the data can be assessed as acceptable based on method blanks, LCS, surrogate and inter-laboratory duplicates results (which were reported at or above the required frequencies and within control limits). <u>ALS: ES2412153</u> Laboratory duplicate and matrix spike samples were not reported PFAS. The precision of the data can be assessed as acceptable based on the intra-laboratory duplicate results and the accuracy of the data can be assessed as acceptable based on method blanks, LCS, surrogate and inter-laboratory duplicates results (which were reported at or above the required frequencies and within control limits).
4. Limits of reporting	LORs exceeded the adopted assessment criteria for recreational receptors for the following: • benzo(a)pyrene (LOR – 0.5/0.6 µg/L, criteria – 0.1 µg/L) • vinyl chloride (LOR <50 µg/L, criteria – 3 µg/L) • bromochlorine (LOR <10 µg/L, criteria – 10 µg/L) These LORs should be taken into consideration when interpreting the data.
5. Field intra-laboratory duplicate RPDs	BH26/QC100 had an RPD of 133% for copper (0.005/<0.001mg/L) exceeding the 30% DQI limit. The elevated RPD is likely attributed to the result being less than 10 times the laboratory LOR.
6. Field inter-laboratory duplicate RPDs	BH26/QC200 had an RPD of 133% for copper (0.005/<0.001mg/L), nickel (0.006/0.004 mg/L) and zinc (0.026/0.017 mg/L) exceeding the 30% DQI limit. The elevated RPDs are likely attributed to the results being less than 10 times the laboratory LOR.
7. Matrix spike (MS) % recoveries	Matrix spike recoveries (where reported) were within control limits, with the following exceptions: <u>ALS: ES2412153</u>

Analyte	Recovery (%)	Range (%)	Comment
Sulfate as SO_4	#Not Determined	70-130	MS recovery not determined, background level greater than or equal to 4 x spike level
Ammonia as N	#Not Determined	70-130	MS recovery not determined, background level greater than or equal to 4 x spike level

There is no material impact on the interpretation of the data as the accuracy of the data can be assessed as acceptable based on the other MS results as well as method blanks and LCS (which were reported at or above the required frequencies and within control limits).

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AECOM

Data Validation Report -Soil Vapour

Project number:	60709736	**Field Team:**	E.Serttas
Site:	Wyong Town Centre	**Sampling dates:**	4 July 2024
Matrix:	Soil Vapour	**Validation by:**	M.Frederico
Primary Laboratory:	Eurofins	**Date:**	19/08/2024
Secondary Laboratory	-	**Data verified by:**	K.McGrath
Lab batch refs	1091616	**Date:**	13/10/2024

Key Findings:

The soil vapour analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- concentrations of COPC chloromethane to be above the adopted guideline, but below the laboratory LOR. This should be taken into consideration when interpreting data and using data quantitatively.
- elevated RPDs for monocyclic aromatic hydrocarbons (MAHs) should be taken into consideration when using the data quantitatively.

Component	Frequency/ Control Limit[1]	Meets Requirements	
		Y/N	If no refer to:
Frequency of field quality assurance/quality control (QAQC)		Y	
Number of tests requested/reported		Y	
Sample handling/preservation/holding times		Y	
Frequency of laboratory QA/QC		Y	
Limits of reporting (LOR)	< guideline	N	1
Blanks Method blank	1 batch / <LOR	Y	
Field intra-laboratory relative percent differences (RPDs)	<30%	N	2
Field inter-laboratory RPDs	<30%	n/a	
Laboratory duplicate sample (LDS) RPDs	Variable	n/a	
Matrix spike (MS) % recoveries	70-130%	n/a	
Laboratory control spike (LCS) % recoveries	70-130%	Y	
Surrogate % recoveries	per lab limits	n/a	
Other observations			

[1] Refer to SAQP for further details

Comments	
1. Limits of reporting	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of the chloromethane where the LOR (22 to 27 µg/m^3) was marginally above the DECCW (2010) Vapour Intrusion Technical Practice Note criteria. As no chlorinated hydrocarbon compounds were detected in the samples analysed there is no impact on the interpretation of the data. The potential exists for concentrations of COPC chloromethane to be above the adopted guideline, but below the laboratory LOR. This should be taken into consideration when interpreting data and using data quantitatively.
2. Field intra-laboratory duplicate RPDs	Field intra-laboratory duplicate RPDs were reported within control limits for the duplicate sample (SV2/QC100), with the exception of monocyclic aromatic hydrocarbons (MAHs) (toluene, ethylbenzene, xylene, styrene, 1-methyl-4 ethyl benzene and 1,2,4-trimethylbenzene) (as shown in the RPD table). As all concentrations of the above were reported at least 4 orders of magnitude below the adopted guideline(s), the elevated RPD is not considered to affect the interpretation of results against guidelines. However, the elevated RPD should be taken into consideration when using the data quantitatively.

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E1 - Soil Vapour - Field Duplicates

			Lab Report Number	1091616	1091616	
			Field ID	SV2_20240423	QC100_20240423	
			Matrix Type	Gas	Gas	
			Date	23 Apr 2024	23 Apr 2024	RPD
	Unit	EQL	RPD			
Total Recoverable Hydrocarbons						
C6-C10 fraction	µg/m3	100		11,000	11,000	0
C6-C10 fraction (minus BTEX)(F1)	µg/m3	100		11,000	11,000	0
>C10-C12	µg/m³	100		530	420	23
>C10-C16 (minus Naphthalene)(F2)	µg/m3	100		530	420	23
Monocyclic Aromatic Hydrocarbons						
Benzene	µg/m3	1.6		<3	<3	0
Toluene	µg/m3	7.5		79	20	119
Ethylbenzene	µg/m3	2.2		30	17	55
m&p-Xylene	µg/m3	4.4		130	45	97
o-Xylene	µg/m3	2.2		65	34	63
Total Xylenes	µg/m3	6.6		200	79	87
Styrene	µg/m3	2.1		<4	<4	0
1-methyl-4 ethyl benzene	µg/m3	2.5		18	6.6	93
1,2,4-trimethylbenzene	µg/m3	2.5		30	11	93
1,3,5-trimethylbenzene	µg/m3	2.5		12	5.4	76
Polynuclear Aromatic Hydrocarbons						
Naphthalene	µg/m3	10.5		<22	<22	0
Nutrients						
Total Nitrogen (as N)	MOL %	0.1		47	47	0
Hydrocarbon Gases						
Isopentane	MOL %	0.01		<0.02	<0.02	0
Butane	MOL %	0.03		<0.06	<0.06	0
Acetylene	MOL %	0.01		<0.02	<0.02	0
Ethane	MOL %	0.04		<0.08	<0.08	0
Ethene	MOL %	0.02		<0.04	<0.04	0
Methane	MOL %	0.05		37	37	0
Propane	MOL %	0.02		<0.04	<0.04	0
Propene	µg/m3	8.6		<18	<18	0
	MOL %			<0.02	<0.02	0
Isobutane	MOL %	0.03		<0.06	<0.06	0
Other						
Oxygen	MOL %	0.1		4.1	4.1	0
Helium	MOL %	0.05		<0.1	<0.1	0
Hydrogen	MOL %	0.03		<0.06	<0.06	0
NA						
2-Methyl-2-Butene	MOL %	0.01		<0.02	<0.02	0
Methyl Acetylene	MOL %	0.01		<0.02	<0.02	0
trans-2-Butene	MOL %	0.03		<0.06	<0.06	0
trans-2-Pentene	MOL %	0.01		<0.02	<0.02	0
cis-2-Pentene	MOL %	0.01		<0.02	<0.02	0
1-Butene	MOL %	0.03		<0.06	<0.06	0
Propadiene	MOL %	0.01		<0.02	<0.02	0
1-Pentene	MOL %	0.01		<0.02	<0.02	0
Isobutylene	MOL %	0.03		<0.06	<0.06	0
Volatile Aliphatic Hydrocarbons						
Pentane	MOL %	0.01		<0.02	<0.02	0
Heptane	µg/m3	2.1		69	60	14
Hexane	µg/m3	5		94	81	15
Cyclohexane	µg/m3	3.5		50	43	15
Inorganics						
Carbon Monoxide	MOL %	0.02		<0.04	<0.04	0
Carbon Dioxide	MOL %	0.03		12	12	0
Fumigants						
1,2-Dibromoethane (EDB)	µg/m3	3.6		<8	<8	0
1,2-Dichloropropane	µg/m3	2.3		<5	<5	0
cis-1,3-Dichloropropene	µg/m3	2.3		<5	<5	0
trans-1,3-Dichloropropene	µg/m3	2.3		<5	<5	0
Halogenated Aromatic Compounds						
Benzyl chloride	µg/m3	2.6		<5	<5	0
Chlorobenzene	µg/m3	2.3		<5	<5	0
1,2-Dichlorobenzene	µg/m3	3		<6	<6	0
1,3-Dichlorobenzene	µg/m3	3		<6	<6	0
1,4-Dichlorobenzene	µg/m3	3		<6	<6	0
1,2,4-Trichlorobenzene	µg/m3	15		<32	<32	0
Halogenated Aliphatic Compounds						
Allyl chloride	µg/m3	1.6		<3	<3	0
Dichlorodifluoromethane (Freon 12)	µg/m3	2.5		<5	<5	0
Chloromethane	µg/m3	10.3		<22	<22	0
Vinyl chloride	µg/m3	2.5		<5	<5	0
Bromomethane	µg/m3	19.4		<41	<41	0
Chloroethane	µg/m3	5.3		<11	<11	0
Trichlorofluoromethane (Freon 11)	µg/m3	2.8		<6	<6	0
1,1-Dichloroethene	µg/m3	2		<4	<4	0
1,1-Dichloroethane	µg/m3	2		<4	<4	0
cis-1,2-Dichloroethene	µg/m3	2		<4	<4	0
trans-1,2-Dichloroethene	µg/m3	2		<4	<4	0
1,1,1-Trichloroethane	µg/m3	2.7		<6	<6	0
Carbon Tetrachloride	µg/m3	3.1		<7	<7	0
1,2-Dichloroethane	µg/m3	2		<4	<4	0
Trichloroethene	µg/m3	2.7		<6	<6	0
1,1,2-Trichloroethane	µg/m3	2.7		<6	<6	0
Tetrachloroethene	µg/m3	3.4		<7	<7	0
1,1,2,2-Tetrachloroethane	µg/m3	3.4		<7	<7	0
1,1,2-trichloro-1,2,2-trifuoroethane (Freon 113)	µg/m3	3.8		<8	<8	0
Dichloromethane	µg/m3	17.4		<37	<37	0
1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m3	3.5		<7	<7	0
Hexachlorobutadiene	µg/m3	21.3		<45	<45	0
Trihalomethanes						
Bromodichloromethane	µg/m3	3.4		<7	<7	0
Bromoform	µg/m3	5.2		<11	<11	0
Chloroform	µg/m3	2.4		<5	<5	0
Dibromochloromethane	µg/m3	4.3		<9	<9	0

E1 - Soil Vapour - Field Duplicates

			Lab Report Number	1091616	1091616	
			Field ID	SV2_20240423	QC100_20240423	
			Matrix Type	Gas	Gas	
			Date	23 Apr 2024	23 Apr 2024	RPD
	Unit	EQL	RPD			
Oxygenated Compounds						
2-Propanone (Acetone)	µg/m3	16.6		68	53	25
Vinyl acetate	µg/m3	7		<15	<15	0
2-Butanone (MEK)	µg/m3	5.9		<12	<12	0
2-hexanone (MBK)	µg/m3	8.2		<17	<17	0
4-Methyl-2-pentanone (MIBK)	µg/m3	2.1		<4	<4	0
Methyltertbutylether (MTBE)	µg/m3	7.2		<15	<15	0
Sulfonated Compounds						
Carbon disulfide	µg/m3	15.6		55	45	20
Alcohols						
2-Propanol	µg/m3	50		940	810	15
Ethanol	µg/m3	9.4		<20	<20	0
iso-Alkanes						
2,2,4-Trimethylpentane	µg/m3	9.3		<20	<20	0
VOCs						
1,4-Dioxane	µg/m3	7.2		<15	<15	0
1,3-Butadiene (vinyl ethylene)	µg/m3	2.2		<5	<5	0
	MOL %			<0.06	<0.06	0
Tetrahydrofuran	µg/m3	1.5		<3	<3	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

E2 - Soil Field Duplicates

			Lab Report Number	ES2341790	ES2341790		ES2341790	ES2341790		ES2344549	1056637		ES2409702
			Field ID	A-BH16B_0.5-0.6	QC200_011223		A-BH16B_0.5-0.6	QC100_011223		A-BH06_3.0-3.1	QC200_20231217		BH30_0.4-0.5
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil
			Date	01 Dec 2023	01 Dec 2023	RPD	01 Dec 2023	01 Dec 2023	RPD	17 Dec 2023	17 Dec 2023	RPD	17 Mar 2024
	Unit	EQL	RPD										
Total Recoverable Hydrocarbons													
C6-C10 fraction	mg/kg	10		<10	<10	0	<10	<10	0	<10	<20	0	<10
C6-C10 fraction (minus BTEX)(F1)	mg/kg	10		<10	<10	0	<10	<10	0	<10	<20	0	<10
>C10-C16 (minus Naphthalene)(F2)	mg/kg	50		<50	<50	0	<50	<50	0	<50	<50	0	<50
>C10-C16 fraction	mg/kg	50		<50	<50	0	<50	<50	0	<50	<50	0	<50
>C16-C34 fraction	mg/kg	100		<100	<100	0	<100	<100	0	<100	<100	0	<100
>C34-C40 fraction	mg/kg	100		<100	<100	0	<100	<100	0	<100	<100	0	<100
>C10-C40 fraction (sum)	mg/kg	50		<50	<50	0	<50	<50	0	<50	<100	0	<50
Total Petroleum Hydrocarbons													
C6-C9 fraction	mg/kg	10		<10	<10	0	<10	<10	0	<10	<20	0	<10
C10-C14 fraction	mg/kg	20		<50	<50	0	<50	<50	0	<50	<20	0	<50
C15-C28 fraction	mg/kg	50		<100	<100	0	<100	<100	0	<100	<50	0	<100
C29-C36 fraction	mg/kg	50		<100	<100	0	<100	<100	0	<100	<50	0	<100
C10-C36 fraction (sum)	mg/kg	50		<50	<50	0	<50	<50	0	<50	<50	0	<50
Monocyclic Aromatic Hydrocarbons													
Naphthalene (used F2 calc)	mg/kg	0.5		<1	<1	0	<1	<1	0	<1	<0.5	0	<1
Benzene	mg/kg	0.1		<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0	<0.2
Toluene	mg/kg	0.1		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Ethylbenzene	mg/kg	0.1		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
m&p-Xylene	mg/kg	0.2		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
o-Xylene	mg/kg	0.1		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Total Xylenes	mg/kg	0.3		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.3	0	<0.5
Total BTEX	mg/kg	0.2		<0.2	<0.2	0	<0.2	<0.2	0	<0.2	-	-	<0.2
Polynuclear Aromatic Hydrocarbons													
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5		0.6	0.6	0	0.6	0.6	0	-	-	-	0.6
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.5		1.2	1.2	0	1.2	1.2	0	-	-	-	1.2
Naphthalene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Acenaphthylene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Acenaphthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Fluorene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Phenanthrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benz(a)anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benzo(k)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benzo(b&j)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benzo(a)pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Chrysene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Sum of PAHs	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5
Metals													
Arsenic	mg/kg	2		12	9	29	12	8	40	8	9.4	16	9
Cadmium	mg/kg	0.4		<1	<1	0	<1	<1	0	<1	<0.4	0	<1
Chromium	mg/kg	2		15	11	31	15	8	61	14	15	7	26
Copper	mg/kg	5		40	37	8	40	48	18	10	14	33	<5
Lead	mg/kg	5		70	80	13	70	112	46	8	8.1	1	8
Mercury	mg/kg	0.1		<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Nickel	mg/kg	2		12	7	53	12	6	67	7	8.7	22	2
Zinc	mg/kg	5		225	229	2	225	279	21	26	32	21	10
Per- and Poly-fluoroalkyl Substances													
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.005		-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	0.0004

E2 - Soil Field Duplicates

			Lab Report Number	ES2341790	ES2341790		ES2341790	ES2341790		ES2344549	1056637		ES2409702
			Field ID	A-BH16B_0.5-0.6	QC200_011223		A-BH16B_0.5-0.6	QC100_011223		A-BH06_3.0-3.1	QC200_20231217		BH30_0.4-0.5
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil
			Date	01 Dec 2023	01 Dec 2023	RPD	01 Dec 2023	01 Dec 2023	RPD	17 Dec 2023	17 Dec 2023	RPD	17 Mar 2024
	Unit	EQL	RPD										
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorononanesulfonic Acid (PFNS)	mg/kg	0.005		-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorobutanoic acid (PFBA)	mg/kg	0.001		-	-	-	-	-	-	-	-	-	<0.001
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	<0.0002
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005		-	-	-	-	-	-	-	-	-	<0.0005
Sum (PFHxS + PFOS)	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	0.0004
Sum of PFAS	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	0.0004
Sum of WA DWER PFAS (n=10)*	mg/kg	0.0002		-	-	-	-	-	-	-	-	-	0.0004
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	0.005		-	-	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	0.005		-	-	-	-	-	-	-	-	-	-
Nutrients													
Ammonia (as N)	mg/kg	5		-	-	-	-	-	-	-	-	-	<20
Phenolic Compounds													
3/4-Methylphenol (m/p-cresol)	mg/kg	1		<1	-	-	<1	-	-	-	-	-	<1
Phenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2-Chlorophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2-Methylphenol (o-Cresol)	mg/kg	0.2		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
3&4-Methylphenol (m&p-Cresol)	mg/kg	0.4		-	-	-	-	-	-	-	-	-	-
Total Cresols	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

			Lab Report Number	ES2341790	ES2341790		ES2341790	ES2341790		ES2344549	1056637		ES2409702
			Field ID	A-BH16B_0.5-0.6	QC200_011223		A-BH16B_0.5-0.6	QC100_011223		A-BH06_3.0-3.1	QC200_20231217		BH30_0.4-0.5
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil
			Date	01 Dec 2023	01 Dec 2023	RPD	01 Dec 2023	01 Dec 2023	RPD	17 Dec 2023	17 Dec 2023	RPD	17 Mar 2024
	Unit	EQL	RPD										
2-Nitrophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2,4-Dichlorophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2,4-Dimethylphenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2,6-Dichlorophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
4-Chloro-3-methylphenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2,4,6-Trichlorophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
2,4,5-Trichlorophenol	mg/kg	0.5		<0.5	-	-	<0.5	-	-	-	-	-	<0.5
4,6-Dinitro-2-methylphenol	mg/kg	5		-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	1		<2	-	-	<2	-	-	-	-	-	<2
2,4-Dinitrophenol	mg/kg	5		-	-	-	-	-	-	-	-	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	20		-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	5		-	-	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	20		-	-	-	-	-	-	-	-	-	-
Tetrachlorophenols	mg/kg	10		-	-	-	-	-	-	-	-	-	-
Sum of Phenols (halogenated)	mg/kg	1		-	-	-	-	-	-	-	-	-	-
Sum of Phenols (non-halogenated)	mg/kg	20		-	-	-	-	-	-	-	-	-	-
Organophosphorus Pesticides (OP)													
Azinphos Methyl	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Carbophenothion	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Chlorpyrifos	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Diazinon	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Dichlorvos	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Dimethoate	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Ethion	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Fenamiphos	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Fenthion	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Malathion	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Monocrotophos	mg/kg	0.2		<0.2	-	-	<0.2	-	-	-	-	-	-
Parathion	mg/kg	0.2		<0.2	-	-	<0.2	-	-	-	-	-	-
Parathion-methyl	mg/kg	0.2		<0.2	-	-	<0.2	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Prothiofos	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Organochlorine Pesticides (OC)													
Aldrin	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Dieldrin	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
a-BHC	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
b-BHC	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
d-BHC	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
cis-Chlordane	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
trans-Chlordane	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Chlordane	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
DDD	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
DDE	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
DDT	mg/kg	0.2		<0.2	-	-	<0.2	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endosulfan	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endosulfan 1	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endosulfan 2	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endrin	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endrin aldehyde	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Endrin ketone	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Heptachlor	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	0.05		<0.05	-	-	<0.05	-	-	-	-	-	-
Methoxychlor	mg/kg	0.2		<0.2	-	-	<0.2	-	-	-	-	-	-
Landfill Gas													

E2 - Soil Field Duplicates

			Lab Report Number	ES2341790	ES2341790		ES2341790	ES2341790		ES2344549	1056637		ES2409702
			Field ID	A-BH16B_0.5-0.6	QC200_011223		A-BH16B_0.5-0.6	QC100_011223		A-BH06_3.0-3.1	QC200_20231217		BH30_0.4-0.5
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil
			Date	01 Dec 2023	01 Dec 2023	RPD	01 Dec 2023	01 Dec 2023	RPD	17 Dec 2023	17 Dec 2023	RPD	17 Mar 2024
	Unit	EQL	RPD										
Description	-			-	-	-	-	-	-	-	-	-	1
Fumigants													
1,2-Dibromoethane (EDB)	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloropropane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
2,2-Dichloropropane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
cis-1,3-Dichloropropene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
trans-1,3-Dichloropropene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Halogenated Aromatic Compounds													
Benzyl chloride	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Chlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
2-Chlorotoluene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
4-Chlorotoluene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2-Dichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,3-Dichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,4-Dichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2,3,4-Tetrachlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2,4-Trichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,3,5-Trichlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds													
Dichlorodifluoromethane (Freon 12)	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
Chloromethane	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
Vinyl chloride	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
Bromomethane	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
Chloroethane	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
Trichlorofluoromethane (Freon 11)	mg/kg	5		-	-	-	-	-	-	-	-	-	<5
1,1-Dichloroethene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Iodomethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
cis-1,2-Dichloroethene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
trans-1,2-Dichloroethene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1,1-Trichloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloropropene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Carbon Tetrachloride	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Trichloroethene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Dibromomethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1,2-Trichloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,3-Dichloropropane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Tetrachloroethene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1,1,2-Tetrachloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
trans-1,4-Dichloro-2-butene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
cis-1,4-Dichloro-2-butene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2,3-Trichloropropane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Pentachloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
1,2-Dibromo-3-chloropropane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Hexachlorobutadiene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Trihalomethanes													
Bromodichloromethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Bromoform	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Chloroform	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Dibromochloromethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	<0.5
Physico-Chemical Parameters													
Moisture Content (dried @ 103°C)	%	1		-	-	-	-	-	-	-	11	-	-
Moisture Content	%	1		10.3	10.0	3	10.3	4.2	84	11.4	-	-	8.8
weight of sample	g	0.01		-	-	-	-	-	-	-	-	-	274
Polychlorinated Biphenyls													

E2 - Soil Field Duplicates

			Lab Report Number	ES2341790	ES2341790		ES2341790	ES2341790		ES2344549	1056637		ES2409702
			Field ID	A-BH16B_0.5-0.6	QC200_011223		A-BH16B_0.5-0.6	QC100_011223		A-BH06_3.0-3.1	QC200_20231217		BH30_0.4-0.5
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil
			Date	01 Dec 2023	01 Dec 2023	RPD	01 Dec 2023	01 Dec 2023	RPD	17 Dec 2023	17 Dec 2023	RPD	17 Mar 2024
	Unit	EQL	RPD										
Polychlorinated Biphenyls	mg/kg	0.1		<0.1	-	-	<0.1	-	-	-	-	-	-
Chlorinated Hydrocarbons													
Benzal Chloride	mg/kg	0.05		-	-	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	0.05		-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	1		-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	0.5		-	-	-	-	-	-	-	-	-	-
Asbestos													
APPROVED IDENTIFIER:	-			-	-	-	-	-	-	-	-	-	1
Asbestos fibres	g/kg	0.1		-	-	-	-	-	-	-	-	-	0
Asbestos Type	-			-	-	-	-	-	-	-	-	-	1
Organic Fibre	--			-	-	-	-	-	-	-	-	-	0
Asbestos (Trace)	-			-	-	-	-	-	-	-	-	-	0
Synthetic Mineral Fibre	--			-	-	-	-	-	-	-	-	-	0

**RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

E2 - Soil Field Duplicates

		ES2409702		ES2409702	1081737		ES2409702	ES2409702		ES2409727	ES2409727		ES2409727
		QC100_202240317		BH30_0.9-1.0	QC200-20240317		BH39_1.2-1.3	QC100_202240318		ACM_BH09(A)_1.8-1.9	QC100_20240319		ACM_BH09(A)_1.8-1.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		17 Mar 2024	RPD	17 Mar 2024	17 Mar 2024	RPD	18 Mar 2024	18 Mar 2024	RPD	19 Mar 2024	19 Mar 2024	RPD	19 Mar 2024
	Unit												
Total Recoverable Hydrocarbons													
C6-C10 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	-	-	-	-
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	0	<10	<20	0	<10	<10	0	-	-	-	-
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	0	<50	<50	0	<50	<50	0	-	-	-	-
>C10-C16 fraction	mg/kg	<50	0	<50	<50	0	<50	<50	0	-	-	-	-
>C16-C34 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	-	-	-	-
>C34-C40 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	-	-	-	-
>C10-C40 fraction (sum)	mg/kg	<50	0	<50	<100	0	<50	<50	0	-	-	-	-
Total Petroleum Hydrocarbons													
C6-C9 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	-	-	-	-
C10-C14 fraction	mg/kg	<50	0	<50	<20	0	<50	<50	0	-	-	-	-
C15-C28 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	-	-	-	-
C29-C36 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	-	-	-	-
C10-C36 fraction (sum)	mg/kg	<50	0	<50	<50	0	<50	<50	0	-	-	-	-
Monocyclic Aromatic Hydrocarbons													
Naphthalene (used F2 calc)	mg/kg	<1	0	<1	<0.5	0	<1	<1	0	-	-	-	-
Benzene	mg/kg	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	-	-	-	-
Toluene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-	-	-	-
Ethylbenzene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-	-	-	-
m&p-Xylene	mg/kg	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	-	-	-	-
o-Xylene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-	-	-	-
Total Xylenes	mg/kg	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	-	-	-	-
Total BTEX	mg/kg	<0.2	0	<0.2	-	-	<0.2	<0.2	0	-	-	-	-
Polynuclear Aromatic Hydrocarbons													
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.6	0	0.6	0.6	0	0.6	0.6	0	-	-	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	0	1.2	1.2	0	1.2	1.2	0	-	-	-	-
Naphthalene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	0.8	46	-	-	-	-
Acenaphthylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Acenaphthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Fluorene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Phenanthrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benz(a)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benzo(b&j)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benzo(a)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Chrysene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-
Sum of PAHs	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	0.8	46	-	-	-	-
Metals													
Arsenic	mg/kg	17	62	21	28	29	10	8	22	7	8	13	7
Cadmium	mg/kg	<1	0	<1	<0.4	0	<1	<1	0	<1	<1	0	<1
Chromium	mg/kg	41	45	70	78	11	22	19	15	15	14	7	15
Copper	mg/kg	<5	0	<5	<5	0	9	8	12	23	24	4	23
Lead	mg/kg	11	32	16	21	27	11	11	0	24	24	0	24
Mercury	mg/kg	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Nickel	mg/kg	3	40	<2	<5	0	6	5	18	7	7	0	7
Zinc	mg/kg	8	22	<5	6.6	28	30	26	14	40	31	25	40
Per- and Poly-fluoroalkyl Substances													
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	<0.0002	67	<0.0002	<0.005	0	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		ES2409702		ES2409702	1081737		ES2409702	ES2409702		ES2409727	ES2409727		ES2409727
		QC100_202240317		BH30_0.9-1.0	QC200-20240317		BH39_1.2-1.3	QC100_202240318		ACM_BH09(A)_1.8-1.9	QC100_20240319		ACM_BH09(A)_1.8-1.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		17 Mar 2024	RPD	17 Mar 2024	17 Mar 2024	RPD	18 Mar 2024	18 Mar 2024	RPD	19 Mar 2024	19 Mar 2024	RPD	19 Mar 2024
	Unit												
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	0	<0.001	<0.005	0	-	-	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	0	<0.0002	<0.01	0	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	0	<0.0002	<0.01	0	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.01	0	-	-	-	-	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.005	0	-	-	-	-	-	-	-
Sum (PFHxS + PFOS)	mg/kg	<0.0002	67	<0.0002	<0.005	0	-	-	-	-	-	-	-
Sum of PFAS	mg/kg	<0.0002	67	<0.0002	<0.05	0	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	<0.0002	67	<0.0002	<0.01	0	-	-	-	-	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Nutrients													
Ammonia (as N)	mg/kg	-	-	<20	-	-	-	-	-	-	-	-	-
Phenolic Compounds													
3/4-Methylphenol (m/p-cresol)	mg/kg	-	-	<1	-	-	<1	-	-	-	-	-	-
Phenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2-Chlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2-Methylphenol (o-Cresol)	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total Cresols	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		ES2409702		ES2409702	1081737		ES2409702	ES2409702		ES2409727	ES2409727		ES2409727
		QC100_202240317		BH30_0.9-1.0	QC200-20240317		BH39_1.2-1.3	QC100_202240318		ACM_BH09(A)_1.8-1.9	QC100_20240319		ACM_BH09(A)_1.8-1.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		17 Mar 2024	RPD	17 Mar 2024	17 Mar 2024	RPD	18 Mar 2024	18 Mar 2024	RPD	19 Mar 2024	19 Mar 2024	RPD	19 Mar 2024
	Unit												
2-Nitrophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2,6-Dichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	-	-	<2	-	-	<2	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachlorophenols	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Organophosphorus Pesticides (OP)													
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)													
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas													

E2 - Soil Field Duplicates

		ES2409702		ES2409702	1081737		ES2409702	ES2409702		ES2409727	ES2409727		ES2409727
		QC100_202240317		BH30_0.9-1.0	QC200-20240317		BH39_1.2-1.3	QC100_202240318		ACM_BH09(A)_1.8-1.9	QC100_20240319		ACM_BH09(A)_1.8-1.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		17 Mar 2024	RPD	17 Mar 2024	17 Mar 2024	RPD	18 Mar 2024	18 Mar 2024	RPD	19 Mar 2024	19 Mar 2024	RPD	19 Mar 2024
	Unit												
Description	-	-	-	-	-	-	-	-	-	-	-	-	-
Fumigants													
1,2-Dibromoethane (EDB)	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Halogenated Aromatic Compounds													
Benzyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,3,5-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds													
Dichlorodifluoromethane (Freon 12)	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (Freon 11)	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
trans-1,4-Dichloro-2-butene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Pentachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Trihalomethanes													
Bromodichloromethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	-
Physico-Chemical Parameters													
Moisture Content (dried @ 103°C)	%	-	-	-	21	-	-	-	-	-	-	-	-
Moisture Content	%	8.6	2	17.2	-	-	13.9	14.3	3	18.7	20.2	8	18.7
weight of sample	g	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls													

E2 - Soil Field Duplicates

		ES2409702		ES2409702	1081737		ES2409702	ES2409702		ES2409727	ES2409727		ES2409727
		QC100_202240317		BH30_0.9-1.0	QC200-20240317		BH39_1.2-1.3	QC100_202240318		ACM_BH09(A)_1.8-1.9	QC100_20240319		ACM_BH09(A)_1.8-1.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		17 Mar 2024	RPD	17 Mar 2024	17 Mar 2024	RPD	18 Mar 2024	18 Mar 2024	RPD	19 Mar 2024	19 Mar 2024	RPD	19 Mar 2024
	Unit												
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons													
Benzal Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos													
APPROVED IDENTIFIER:	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos fibres	g/kg	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Type	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos (Trace)	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Mineral Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

		1081719		ES2409869	ES2409869		ES2409869	1084489		ES2409869	ES2409869		ES2409765
		QC200-2024031S		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC100_20240321		20240322-R-BH16A_0.4-06
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		25 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	22 Mar 2024
	Unit												
Total Recoverable Hydrocarbons													
C6-C10 fraction	mg/kg	-	-	<10	<10	0	<10	<20	0	<10	<10	0	-
C6-C10 fraction (minus BTEX)(F1)	mg/kg	-	-	<10	<10	0	<10	<20	0	<10	<10	0	-
>C10-C16 (minus Naphthalene)(F2)	mg/kg	-	-	<50	<50	0	<50	<50	0	<50	<50	0	-
>C10-C16 fraction	mg/kg	-	-	<50	<50	0	<50	<50	0	<50	<50	0	-
>C16-C34 fraction	mg/kg	-	-	<100	<100	0	<100	<100	0	<100	150	40	-
>C34-C40 fraction	mg/kg	-	-	<100	<100	0	<100	<100	0	<100	<100	0	-
>C10-C40 fraction (sum)	mg/kg	-	-	<50	<50	0	<50	<100	0	<50	150	100	-
Total Petroleum Hydrocarbons													
C6-C9 fraction	mg/kg	-	-	<10	<10	0	<10	<20	0	<10	<10	0	-
C10-C14 fraction	mg/kg	-	-	<50	<50	0	<50	<20	0	<50	<50	0	-
C15-C28 fraction	mg/kg	-	-	<100	<100	0	<100	<50	0	<100	<100	0	-
C29-C36 fraction	mg/kg	-	-	<100	<100	0	<100	<50	0	<100	<100	0	-
C10-C36 fraction (sum)	mg/kg	-	-	<50	<50	0	<50	<50	0	<50	<50	0	-
Monocyclic Aromatic Hydrocarbons													
Naphthalene (used F2 calc)	mg/kg	-	-	<1	<1	0	<1	<0.5	0	<1	<1	0	-
Benzene	mg/kg	-	-	<0.2	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	-
Toluene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-
Ethylbenzene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-
m&p-Xylene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	-
o-Xylene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	-
Total Xylenes	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	-
Total BTEX	mg/kg	-	-	<0.2	<0.2	0	<0.2	-	-	<0.2	<0.2	0	-
Polynuclear Aromatic Hydrocarbons													
Benzo(a)pyrene TEQ calc (Half)	mg/kg	-	-	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	-
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	-	-	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	-
Naphthalene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Acenaphthylene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Acenaphthene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Anthracene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Fluorene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Phenanthrene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Fluoranthene	mg/kg	-	-	0.9	<0.5	57	0.9	<0.5	57	0.9	1.3	36	-
Benz(a)anthracene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Benzo(k)fluoranthene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Benzo(b&j)fluoranthene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.5	0	-
Benzo(a)pyrene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Chrysene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.6	18	-
Pyrene	mg/kg	-	-	0.9	<0.5	57	0.9	<0.5	57	0.9	1.2	29	-
Benzo(g,h,i)perylene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Dibenz(a,h)anthracene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Indeno(1,2,3-cd)pyrene	mg/kg	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	-
Sum of PAHs	mg/kg	-	-	1.8	<0.5	113	1.8	<0.5	113	1.8	3.6	67	-
Metals													
Arsenic	mg/kg	13	60	<5	<5	0	<5	12	82	<5	<5	0	-
Cadmium	mg/kg	<0.4	0	<1	<1	0	<1	<0.4	0	<1	<1	0	-
Chromium	mg/kg	14	7	10	5	67	10	9.0	11	10	10	0	-
Copper	mg/kg	23	0	14	<5	95	14	<5	95	14	14	0	-
Lead	mg/kg	21	13	41	10	122	41	11	115	41	38	8	-
Mercury	mg/kg	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	-
Nickel	mg/kg	<5	33	5	<2	86	5	<5	0	5	5	0	-
Zinc	mg/kg	23	54	96	14	149	96	16	143	96	106	10	-
Per- and Poly-fluoroalkyl Substances													
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		1081719		ES2409869	ES2409869		ES2409869	1084489		ES2409869	ES2409869		ES2409765
		QC200-2024031S		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC100_20240321		20240322-R-BH16A_0.4-06
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		25 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	22 Mar 2024
	Unit												
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum (PFHxS + PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
Ammonia (as N)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Phenolic Compounds													
3/4-Methylphenol (m/p-cresol)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-
2-Chlorophenol	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-
2-Methylphenol (o-Cresol)	mg/kg	-	-	-	-	-	-	<0.2	-	-	-	-	-
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	-	-	-	<0.4	-	-	-	-	-
Total Cresols	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-

E2 - Soil Field Duplicates

		1081719		ES2409869	ES2409869		ES2409869	1084489		ES2409869	ES2409869		ES2409765
		QC200-2024031S		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC100_20240321		20240322-R-BH16A_0.4-06
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		25 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	22 Mar 2024
	Unit												
2-Nitrophenol	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-
2,6-Dichlorophenol	mg/kg	-	-	-	-	-	-	<0.5	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	-	-	-	<5	-	-	-	-	-
Pentachlorophenol	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	-	-	-	-	-	-	<5	-	-	-	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	-	-	-	<20	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	-	-	-	<5	-	-	-	-	-
Dinoseb	mg/kg	-	-	-	-	-	-	<20	-	-	-	-	-
Tetrachlorophenols	mg/kg	-	-	-	-	-	-	<10	-	-	-	-	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	-	-	-	<1	-	-	-	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	-	-	-	<20	-	-	-	-	-
Organophosphorus Pesticides (OP)													
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)													
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas													

E2 - Soil Field Duplicates

		1081719		ES2409869	ES2409869		ES2409869	1084489		ES2409869	ES2409869		ES2409765
		QC200-2024031S		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC100_20240321		20240322-R-BH16A_0.4-06
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
	Unit	25 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	22 Mar 2024
Description	-	-	-	1	-	-	1	-	-	1	-	-	1
Fumigants													
1,2-Dibromoethane (EDB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aromatic Compounds													
Benzyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds													
Dichlorodifluoromethane (Freon 12)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (Freon 11)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Trihalomethanes													
Bromodichloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Physico-Chemical Parameters													
Moisture Content (dried @ 103°C)	%	19	-	-	-	-	-	13	-	-	-	-	-
Moisture Content	%	-	-	15.9	13.6	16	15.9	-	-	15.9	18.5	15	-
weight of sample	g	-	-	170	-	-	170	-	-	170	-	-	582
Polychlorinated Biphenyls													

E2 - Soil Field Duplicates

		1081719		ES2409869	ES2409869		ES2409869	1084489		ES2409869	ES2409869		ES2409765
		QC200-2024031S		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC200_20240321		R_TP07_0-0.1	QC100_20240321		20240322-R-BH16A_0.4-06
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		25 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	21 Mar 2024	21 Mar 2024	RPD	22 Mar 2024
	Unit												
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons													
Benzal Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos													
APPROVED IDENTIFIER:	-	-	-	1	-	-	1	-	-	1	-	-	1
Asbestos fibres	g/kg	-	-	0	-	-	0	-	-	0	-	-	0
Asbestos Type	-	-	-	1	-	-	1	-	-	1	-	-	1
Organic Fibre	--	-	-	0	-	-	0	-	-	0	-	-	0
Asbestos (Trace)	-	-	-	0	-	-	0	-	-	0	-	-	0
Synthetic Mineral Fibre	--	-	-	0	-	-	0	-	-	0	-	-	0

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

	Unit	ES2409765 QC200_20240322 Soil 22 Mar 2024	RPD	ES2409765 20240322-R-BH16A_0.4-06 Soil 22 Mar 2024	ES2409765 QC100_20240322 Soil 22 Mar 2024	RPD	ES2409765 20240322-R-BH16A_0.4-06 Soil 22 Mar 2024	1084238 QC200_20240322 € Soil 22 Mar 2024	RPD	ES2409869 BH35_0.3-0.4 Soil 22 Mar 2024	ES2409869 QC200_20240322 Soil 22 Mar 2024	RPD
Total Recoverable Hydrocarbons												
C6-C10 fraction	mg/kg	<10	-	-	<10	-	-	<20	-	<10	<10	0
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	-	-	<10	-	-	<20	-	<10	<10	0
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	-	-	<50	-	-	<50	-	<50	<50	0
>C10-C16 fraction	mg/kg	<50	-	-	<50	-	-	<50	-	<50	<50	0
>C16-C34 fraction	mg/kg	<100	-	-	<100	-	-	<100	-	140	120	15
>C34-C40 fraction	mg/kg	<100	-	-	<100	-	-	<100	-	<100	<100	0
>C10-C40 fraction (sum)	mg/kg	<50	-	-	<50	-	-	<100	-	140	120	15
Total Petroleum Hydrocarbons												
C6-C9 fraction	mg/kg	<10	-	-	<10	-	-	<20	-	<10	<10	0
C10-C14 fraction	mg/kg	<50	-	-	<50	-	-	<20	-	<50	<50	0
C15-C28 fraction	mg/kg	<100	-	-	<100	-	-	<50	-	<100	<100	0
C29-C36 fraction	mg/kg	<100	-	-	<100	-	-	<50	-	<100	<100	0
C10-C36 fraction (sum)	mg/kg	<50	-	-	<50	-	-	<50	-	<50	<50	0
Monocyclic Aromatic Hydrocarbons												
Naphthalene (used F2 calc)	mg/kg	<1	-	-	<1	-	-	<0.5	-	<1	<1	0
Benzene	mg/kg	<0.2	-	-	<0.2	-	-	<0.1	-	<0.2	<0.2	0
Toluene	mg/kg	<0.5	-	-	<0.5	-	-	<0.1	-	<0.5	<0.5	0
Ethylbenzene	mg/kg	<0.5	-	-	<0.5	-	-	<0.1	-	<0.5	<0.5	0
m&p-Xylene	mg/kg	<0.5	-	-	<0.5	-	-	<0.2	-	<0.5	<0.5	0
o-Xylene	mg/kg	<0.5	-	-	<0.5	-	-	<0.1	-	<0.5	<0.5	0
Total Xylenes	mg/kg	<0.5	-	-	<0.5	-	-	<0.3	-	<0.5	<0.5	0
Total BTEX	mg/kg	<0.2	-	-	<0.2	-	-	-	-	<0.2	<0.2	0
Polynuclear Aromatic Hydrocarbons												
Benzo(a)pyrene TEQ calc (Half)	mg/kg	1.5	-	-	1.8	-	-	1.6	-	2.2	1.7	26
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	1.2	-	-	1.6	-	-	1.4	-	1.9	1.5	24
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.8	-	-	2.1	-	-	1.9	-	2.4	2.0	18
Naphthalene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Acenaphthylene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Acenaphthene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Anthracene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Fluorene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Phenanthrene	mg/kg	1.0	-	-	1.1	-	-	1.0	-	0.7	0.5	33
Fluoranthene	mg/kg	2.2	-	-	2.5	-	-	2.3	-	2.5	1.8	33
Benz(a)anthracene	mg/kg	0.7	-	-	0.9	-	-	0.9	-	1.4	0.9	43
Benzo(k)fluoranthene	mg/kg	<0.5	-	-	0.6	-	-	1.2	-	0.7	0.6	15
Benzo(b&j)fluoranthene	mg/kg	0.9	-	-	1.3	-	-	0.8	-	2.0	1.6	22
Benzo(a)pyrene	mg/kg	1.0	-	-	1.2	-	-	1.0	-	1.4	1.1	24
Chrysene	mg/kg	0.8	-	-	1.0	-	-	1.0	-	1.4	1.0	33
Pyrene	mg/kg	2.0	-	-	2.4	-	-	2.2	-	2.3	1.7	30
Benzo(g,h,i)perylene	mg/kg	0.7	-	-	0.8	-	-	0.5	-	0.9	0.8	12
Dibenz(a,h)anthracene	mg/kg	<0.5	-	-	<0.5	-	-	<0.5	-	<0.5	<0.5	0
Indeno(1,2,3-cd)pyrene	mg/kg	0.7	-	-	0.8	-	-	0.6	-	0.8	0.7	13
Sum of PAHs	mg/kg	10.0	-	-	12.6	-	-	12	-	14.1	10.7	27
Metals												
Arsenic	mg/kg	16	-	-	15	-	-	46	-	-	-	-
Cadmium	mg/kg	<1	-	-	<1	-	-	<0.4	-	-	-	-
Chromium	mg/kg	7	-	-	11	-	-	22	-	-	-	-
Copper	mg/kg	30	-	-	30	-	-	140	-	-	-	-
Lead	mg/kg	88	-	-	88	-	-	650	-	11	11	0
Mercury	mg/kg	<0.1	-	-	<0.1	-	-	<0.1	-	-	-	-
Nickel	mg/kg	6	-	-	5	-	-	17	-	-	-	-
Zinc	mg/kg	304	-	-	379	-	-	2,000	-	-	-	-
Per- and Poly-fluoroalkyl Substances												
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		ES2409765		ES2409765	ES2409765		ES2409765	1084238		ES2409869	ES2409869	
		QC200_20240322		20240322-R-BH16A_0.4-06	QC100_20240322		20240322-R-BH16A_0.4-06	QC200_20240322 €		BH35_0.3-0.4	QC200_20240322	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
	Unit	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum (PFHxS + PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Nutrients												
Ammonia (as N)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Phenolic Compounds												
3/4-Methylphenol (m/p-cresol)	mg/kg	-	-	-	-	-	-	-	-	<1	<1	0
Phenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2-Chlorophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2-Methylphenol (o-Cresol)	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Total Cresols	mg/kg	-	-	-	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		ES2409765		ES2409765	ES2409765		ES2409765	1084238		ES2409869	ES2409869	
		QC200_20240322		20240322-R-BH16A_0.4-06	QC100_20240322		20240322-R-BH16A_0.4-06	QC200_20240322 €		BH35_0.3-0.4	QC200_20240322	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD
	Unit											
2-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2,4-Dichlorophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2,4-Dimethylphenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2,6-Dichlorophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
4-Chloro-3-methylphenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2,4,6-Trichlorophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
2,4,5-Trichlorophenol	mg/kg	-	-	-	-	-	-	-	-	<0.5	<0.5	0
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	-	-	-	-	-	-	-	-	<2	<2	0
2,4-Dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Tetrachlorophenols	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Organophosphorus Pesticides (OP)												
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)												
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas												

E2 - Soil Field Duplicates

		ES2409765		ES2409765	ES2409765		ES2409765	1084238		ES2409869	ES2409869	
		QC200_20240322		20240322-R-BH16A_0.4-06	QC100_20240322		20240322-R-BH16A_0.4-06	QC200_20240322 €		BH35_0.3-0.4	QC200_20240322	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD
	Unit											
Description	-	-	-	1	-	-	1	-	-	-	-	-
Fumigants												
1,2-Dibromoethane (EDB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aromatic Compounds												
Benzyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds												
Dichlorodifluoromethane (Freon 12)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (Freon 11)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Iodomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Pentachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Trihalomethanes												
Bromodichloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Bromoform	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Physico-Chemical Parameters												
Moisture Content (dried @ 103°C)	%	-	-	-	-	-	-	8.9	-	-	-	-
Moisture Content	%	9.3	-	-	7.8	-	-	-	-	13.4	14.3	6
weight of sample	g	-	-	582	-	-	582	-	-	-	-	-
Polychlorinated Biphenyls												

E2 - Soil Field Duplicates

		ES2409765		ES2409765	ES2409765		ES2409765	1084238		ES2409869	ES2409869	
		QC200_20240322		20240322-R-BH16A_0.4-06	QC100_20240322		20240322-R-BH16A_0.4-06	QC200_20240322 €		BH35_0.3-0.4	QC200_20240322	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD
	Unit											
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons												
Benzal Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Asbestos												
APPROVED IDENTIFIER:	-	-	-	1	-	-	1	-	-	-	-	-
Asbestos fibres	g/kg	-	-	0	-	-	0	-	-	-	-	-
Asbestos Type	-	-	-	1	-	-	1	-	-	-	-	-
Organic Fibre	--	-	-	0	-	-	0	-	-	-	-	-
Asbestos (Trace)	-	-	-	0	-	-	0	-	-	-	-	-
Synthetic Mineral Fibre	--	-	-	0	-	-	0	-	-	-	-	-

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

		ES2409869	1084489		ES2409869	ES2409869		ES2409806	ES2409806		ES2409806	1084494		ES2410587
		BH35_0.3-0.4	QC200_20240322		BH35_0.3-0.4	QC100_20240322		BH26_1.5-1.6	QC100_20240324		BH26_1.5-1.6	QC200_20240324		BH28_0.3-0.4
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	26 Mar 2024
	Unit													
Total Recoverable Hydrocarbons														
C6-C10 fraction	mg/kg	<10	<20	0	<10	<10	0	<10	<10	0	<10	<20	0	<10
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	<20	0	<10	<10	0	<10	<10	0	<10	<20	0	<10
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C10-C16 fraction	mg/kg	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C16-C34 fraction	mg/kg	140	150	7	140	120	15	240	200	18	240	470	65	<100
>C34-C40 fraction	mg/kg	<100	<100	0	<100	<100	0	<100	<100	0	<100	340	109	<100
>C10-C40 fraction (sum)	mg/kg	140	150	7	140	120	15	240	200	18	240	810	109	<50
Total Petroleum Hydrocarbons														
C6-C9 fraction	mg/kg	<10	<20	0	<10	<10	0	<10	<10	0	<10	<20	0	<10
C10-C14 fraction	mg/kg	<50	<20	0	<50	<50	0	<50	<50	0	<50	35	0	<50
C15-C28 fraction	mg/kg	<100	94	0	<100	<100	0	140	110	24	140	290	70	<100
C29-C36 fraction	mg/kg	<100	73	0	<100	<100	0	140	120	15	140	280	67	<100
C10-C36 fraction (sum)	mg/kg	<50	167	108	<50	<50	0	280	230	20	280	605	73	<50
Monocyclic Aromatic Hydrocarbons														
Naphthalene (used F2 calc)	mg/kg	<1	<0.5	0	<1	<1	0	<1	<1	0	<1	<0.5	0	<1
Benzene	mg/kg	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0	<0.2
Toluene	mg/kg	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Ethylbenzene	mg/kg	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
m&p-Xylene	mg/kg	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
o-Xylene	mg/kg	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Total Xylenes	mg/kg	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.3	0	<0.5
Total BTEX	mg/kg	<0.2	-	-	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	-	-	<0.2
Polynuclear Aromatic Hydrocarbons														
Benzo(a)pyrene TEQ calc (Half)	mg/kg	2.2	1.5	38	2.2	2.1	5	6.8	6.8	0	6.8	2.9	80	0.6
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	1.9	1.2	45	1.9	1.8	5	6.8	6.8	0	6.8	2.6	89	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	2.4	1.7	34	2.4	2.4	0	6.8	6.8	0	6.8	3.1	75	1.2
Naphthalene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Acenaphthylene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	0.8	0.6	29	0.8	<0.5	46	<0.5
Acenaphthene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Anthracene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	1.3	1.2	8	1.3	<0.5	89	<0.5
Fluorene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Phenanthrene	mg/kg	0.7	0.5	33	0.7	0.9	25	4.2	4.2	0	4.2	1.5	95	<0.5
Fluoranthene	mg/kg	2.5	1.7	38	2.5	2.5	0	10.2	10.5	3	10.2	4.6	76	<0.5
Benz(a)anthracene	mg/kg	1.4	0.8	55	1.4	1.1	24	4.2	4.0	5	4.2	1.6	90	<0.5
Benzo(k)fluoranthene	mg/kg	0.7	1.1	44	0.7	0.7	0	2.3	2.4	4	2.3	2.0	14	<0.5
Benzo(b&j)fluoranthene	mg/kg	2.0	0.8	86	2.0	1.7	16	5.4	5.3	2	5.4	1.7	104	<0.5
Benzo(a)pyrene	mg/kg	1.4	0.9	43	1.4	1.4	0	4.7	4.7	0	4.7	2.0	81	<0.5
Chrysene	mg/kg	1.4	1.2	15	1.4	1.2	15	4.1	4.0	2	4.1	2.0	69	<0.5
Pyrene	mg/kg	2.3	1.8	24	2.3	2.4	4	9.4	9.6	2	9.4	4.4	72	<0.5
Benzo(g,h,i)perylene	mg/kg	0.9	<0.5	57	0.9	1.0	11	3.3	3.4	3	3.3	1.3	87	<0.5
Dibenz(a,h)anthracene	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	0.6	0.6	0	0.6	<0.5	18	<0.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.8	<0.5	46	0.8	0.8	0	2.7	2.9	7	2.7	0.8	109	<0.5
Sum of PAHs	mg/kg	14.1	8.8	46	14.1	13.7	3	53.2	53.4	0	53.2	22	83	<0.5
Metals														
Arsenic	mg/kg	-	5.5	-	-	-	-	12	9	29	12	8.7	32	6
Cadmium	mg/kg	-	<0.4	-	-	-	-	<1	<1	0	<1	<0.4	0	<1
Chromium	mg/kg	-	12	-	-	-	-	32	22	37	32	23	33	18
Copper	mg/kg	-	6.6	-	-	-	-	31	48	43	31	23	30	5
Lead	mg/kg	11	13	17	11	12	9	71	93	27	71	50	35	8
Mercury	mg/kg	-	<0.1	-	-	-	-	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Nickel	mg/kg	-	<5	-	-	-	-	4	4	0	4	<5	0	4
Zinc	mg/kg	-	17	-	-	-	-	105	155	38	105	77	31	12
Per- and Poly-fluoroalkyl Substances														
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	-	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0	-

E2 - Soil Field Duplicates

	Unit	ES2409869 BH35_0.3-0.4 Soil 22 Mar 2024	1084489 QC200_20240322 Soil 22 Mar 2024	RPD	ES2409869 BH35_0.3-0.4 Soil 22 Mar 2024	ES2409869 QC100_20240322 Soil 22 Mar 2024	RPD	ES2409806 BH26_1.5-1.6 Soil 24 Mar 2024	ES2409806 QC100_20240324 Soil 24 Mar 2024	RPD	ES2409806 BH26_1.5-1.6 Soil 24 Mar 2024	1084494 QC200_20240324 Soil 24 Mar 2024	RPD	ES2410587 BH28_0.3-0.4 Soil 26 Mar 2024
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0	-
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	-	-	-	-	-	-	<0.001	<0.001	0	<0.001	-	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	-	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	-	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	-	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0	-
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	-	-	-	-	-	-	<0.0005	<0.0005	0	<0.0005	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	-	-	-	-	-	-	<0.0005	<0.0005	0	<0.0005	<0.01	0	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	-	-	-	-	-	-	<0.0005	<0.0005	0	<0.0005	-	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	-	-	-	-	-	-	<0.0005	<0.0005	0	<0.0005	-	-	-
Sum (PFHxS + PFOS)	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	<0.005	0	-
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	-	-	-	-	-	-	<0.0002	<0.0002	0	<0.0002	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.005	-	-
Nutrients														
Ammonia (as N)	mg/kg	-	-	-	-	-	-	<20	<20	0	<20	<5	0	-
Phenolic Compounds														
3/4-Methylphenol (m/p-cresol)	mg/kg	<1	-	-	<1	<1	0	<1	<1	0	<1	-	-	<1
Phenol	mg/kg	<0.5	1.2	82	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2-Chlorophenol	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2-Methylphenol (o-Cresol)	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	<1	-	-	-	-	-	-	-	-	<1	-	-
Total Cresols	mg/kg	-	<1	-	-	-	-	-	-	-	-	<1	-	-

E2 - Soil Field Duplicates

		ES2409869	1084489		ES2409869	ES2409869		ES2409806	ES2409806		ES2409806	1084494		ES2410587
		BH35_0.3-0.4	QC200_20240322		BH35_0.3-0.4	QC100_20240322		BH26_1.5-1.6	QC100_20240324		BH26_1.5-1.6	QC200_20240324		BH28_0.3-0.4
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	26 Mar 2024
	Unit													
2-Nitrophenol	mg/kg	<0.5	<1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4-Dichlorophenol	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2,4-Dimethylphenol	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2,6-Dichlorophenol	mg/kg	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
4-Chloro-3-methylphenol	mg/kg	<0.5	<1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4,6-Trichlorophenol	mg/kg	<0.5	<1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4,5-Trichlorophenol	mg/kg	<0.5	<1	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1	0	<0.5
4,6-Dinitro-2-methylphenol	mg/kg	-	<5	-	-	-	-	-	-	-	-	<5	-	-
Pentachlorophenol	mg/kg	<2	<1	0	<2	<2	0	<2	<2	0	<2	<1	0	<2
2,4-Dinitrophenol	mg/kg	-	<5	-	-	-	-	-	-	-	-	<5	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	<20	-	-	-	-	-	-	-	-	<20	-	-
4-Nitrophenol	mg/kg	-	<5	-	-	-	-	-	-	-	-	<5	-	-
Dinoseb	mg/kg	-	<20	-	-	-	-	-	-	-	-	<20	-	-
Tetrachlorophenols	mg/kg	-	<10	-	-	-	-	-	-	-	-	<10	-	-
Sum of Phenols (halogenated)	mg/kg	-	<1	-	-	-	-	-	-	-	-	<1	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	<20	-	-	-	-	-	-	-	-	<20	-	-
Organophosphorus Pesticides (OP)														
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)														
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas														

E2 - Soil Field Duplicates

		ES2409869	1084489		ES2409869	ES2409869		ES2409806	ES2409806		ES2409806	1084494		ES2410587
		BH35_0.3-0.4	QC200_20240322		BH35_0.3-0.4	QC100_20240322		BH26_1.5-1.6	QC100_20240324		BH26_1.5-1.6	QC200_20240324		BH28_0.3-0.4
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	26 Mar 2024
	Unit													
Description	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Fumigants														
1,2-Dibromoethane (EDB)	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,2-Dichloropropane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
2,2-Dichloropropane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
cis-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
trans-1,3-Dichloropropene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Halogenated Aromatic Compounds														
Benzyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Bromobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Chlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
2-Chlorotoluene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
4-Chlorotoluene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,2-Dichlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
1,3-Dichlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
1,4-Dichlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
1,2,4-Trichlorobenzene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
1,3,5-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Halogenated Aliphatic Compounds														
Dichlorodifluoromethane (Freon 12)	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
Chloromethane	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
Vinyl chloride	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
Bromomethane	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
Chloroethane	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
Trichlorofluoromethane (Freon 11)	mg/kg	-	-	-	-	-	-	<5	<5	0	<5	-	-	<5
1,1-Dichloroethene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Iodomethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1-Dichloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
cis-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
trans-1,2-Dichloroethene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1,1-Trichloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1-Dichloropropene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Carbon Tetrachloride	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,2-Dichloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Trichloroethene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Dibromomethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1,2-Trichloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,3-Dichloropropane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Tetrachloroethene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1,1,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
trans-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
cis-1,4-Dichloro-2-butene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,2,3-Trichloropropane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Pentachloroethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
1,2-Dibromo-3-chloropropane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Hexachlorobutadiene	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
Trihalomethanes														
Bromodichloromethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Bromoform	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Chloroform	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Dibromochloromethane	mg/kg	-	-	-	-	-	-	<0.5	<0.5	0	<0.5	-	-	<0.5
Physico-Chemical Parameters														
Moisture Content (dried @ 103°C)	%	-	16	-	-	-	-	-	-	-	-	15	-	-
Moisture Content	%	13.4	-	-	13.4	15.6	15	14.7	15.5	5	14.7	-	-	15.4
weight of sample	g	-	-	-	-	-	-	-	-	-	-	-	-	320
Polychlorinated Biphenyls														

E2 - Soil Field Duplicates

		ES2409869	1084489		ES2409869	ES2409869		ES2409806	ES2409806		ES2409806	1084494		ES2410587
		BH35_0.3-0.4	QC200_20240322		BH35_0.3-0.4	QC100_20240322		BH26_1.5-1.6	QC100_20240324		BH26_1.5-1.6	QC200_20240324		BH28_0.3-0.4
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		22 Mar 2024	22 Mar 2024	RPD	22 Mar 2024	22 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	24 Mar 2024	24 Mar 2024	RPD	26 Mar 2024
	Unit													
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons														
Benzal Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Benzotrichloride	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Pentachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	<1	-	-
Asbestos														
APPROVED IDENTIFIER:	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Asbestos fibres	g/kg	-	-	-	-	-	-	-	-	-	-	-	-	0
Asbestos Type	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Organic Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-	0
Asbestos (Trace)	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Synthetic Mineral Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-	0

*RPDs have only been considered where a concentration i

**Elevated RPDs are highlighted as per QAQC Profile setti

***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

		ES2410587		ES2410587	1084484		ES2410231	ES2410231		ES2410231	1083748		ES2411530
		QC100_20240326		BH28_0.3-0.4	QC200_20240326		BH01_2.8-2.9	QC100_20240327		BH01_2.8-2.9	QC200_20240327		ACM-CO05_0.8-0.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		26 Mar 2024	RPD	26 Mar 2024	26 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	07 Apr 2024
	Unit												
Total Recoverable Hydrocarbons													
C6-C10 fraction	mg/kg	<10	0	<10	23	79	<10	<10	0	<10	<20	0	<10
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	0	<10	23	79	<10	<10	0	<10	<20	0	<10
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C10-C16 fraction	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C16-C34 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100
>C34-C40 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100
>C10-C40 fraction (sum)	mg/kg	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	<50
Total Petroleum Hydrocarbons													
C6-C9 fraction	mg/kg	<10	0	<10	22	75	<10	<10	0	<10	<20	0	<10
C10-C14 fraction	mg/kg	<50	0	<50	<20	0	<50	<50	0	<50	<20	0	<50
C15-C28 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100
C29-C36 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100
C10-C36 fraction (sum)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
Monocyclic Aromatic Hydrocarbons													
Naphthalene (used F2 calc)	mg/kg	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0	<1
Benzene	mg/kg	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.1	0	<0.2
Toluene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Ethylbenzene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
m&p-Xylene	mg/kg	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
o-Xylene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Total Xylenes	mg/kg	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.3	0	<0.5
Total BTEX	mg/kg	<0.2	0	<0.2	-	-	<0.2	<0.2	0	<0.2	-	-	<0.2
Polynuclear Aromatic Hydrocarbons													
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2
Naphthalene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Acenaphthylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Acenaphthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Fluorene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Phenanthrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benz(a)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(k)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(b&j)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(a)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Chrysene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(g,h,i)perylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Dibenz(a,h)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Indeno(1,2,3-cd)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Sum of PAHs	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Metals													
Arsenic	mg/kg	9	40	6	8.1	30	9	<5	57	9	5.7	45	<5
Cadmium	mg/kg	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0	<1
Chromium	mg/kg	26	36	18	24	29	20	20	0	20	16	22	26
Copper	mg/kg	5	0	5	5.6	11	14	13	7	14	14	0	29
Lead	mg/kg	9	12	8	11	32	17	14	19	17	14	19	24
Mercury	mg/kg	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Nickel	mg/kg	4	0	4	<5	0	4	3	29	4	<5	0	13
Zinc	mg/kg	9	29	12	10	18	25	20	22	25	24	4	35
Per- and Poly-fluoroalkyl Substances													
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005

E2 - Soil Field Duplicates

	Unit	ES2410587 QC100_20240326 Soil 26 Mar 2024	RPD	ES2410587 BH28_0.3-0.4 Soil 26 Mar 2024	1084484 QC200_20240326 Soil 26 Mar 2024	RPD	ES2410231 BH01_2.8-2.9 Soil 27 Mar 2024	ES2410231 QC100_20240327 Soil 27 Mar 2024	RPD	ES2410231 BH01_2.8-2.9 Soil 27 Mar 2024	1083748 QC200_20240327 Soil 27 Mar 2024	RPD	ES2411530 ACM-CO05_0.8-0.9 Soil 07 Apr 2024
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.002
Perfluoropentanoic acid (PFPeA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluorohexanoic acid (PFHxA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluoroheptanoic acid (PFHpA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluorooctanoic acid (PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Sum (PFHxS + PFOS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	-	-	-	-	-	-	-	-	-	-	-	<0.0005
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients													
Ammonia (as N)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Phenolic Compounds													
3/4-Methylphenol (m/p-cresol)	mg/kg	-	-	<1	-	-	<1	<1	0	<1	-	-	<1
Phenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2-Chlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2-Methylphenol (o-Cresol)	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	-	-	-	-	-	-	<0.4	-	-
Total Cresols	mg/kg	-	-	-	-	-	-	-	-	-	<0.5	-	-

E2 - Soil Field Duplicates

		ES2410587		ES2410587	1084484		ES2410231	ES2410231		ES2410231	1083748		ES2411530
		QC100_20240326		BH28_0.3-0.4	QC200_20240326		BH01_2.8-2.9	QC100_20240327		BH01_2.8-2.9	QC200_20240327		ACM-CO05_0.8-0.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		26 Mar 2024	RPD	26 Mar 2024	26 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	07 Apr 2024
	Unit												
2-Nitrophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4-Dichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2,4-Dimethylphenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
2,6-Dichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
4-Chloro-3-methylphenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4,6-Trichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
2,4,5-Trichlorophenol	mg/kg	-	-	<0.5	-	-	<0.5	<0.5	0	<0.5	<1	0	<0.5
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	<5	-	-
Pentachlorophenol	mg/kg	-	-	<2	-	-	<2	<2	0	<2	<1	0	<2
2,4-Dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	<5	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	<20	-	-
4-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	<5	-	-
Dinoseb	mg/kg	-	-	-	-	-	-	-	-	-	<20	-	-
Tetrachlorophenols	mg/kg	-	-	-	-	-	-	-	-	-	<10	-	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	<1	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	-	-	-	-	-	-	<20	-	-
Organophosphorus Pesticides (OP)													
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)													
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas													

E2 - Soil Field Duplicates

		ES2410587		ES2410587	1084484		ES2410231	ES2410231		ES2410231	1083748		ES2411530
		QC100_20240326		BH28_0.3-0.4	QC200_20240326		BH01_2.8-2.9	QC100_20240327		BH01_2.8-2.9	QC200_20240327		ACM-CO05_0.8-0.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		26 Mar 2024	RPD	26 Mar 2024	26 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	07 Apr 2024
	Unit												
Description	-	-	-	1	-	-	-	-	-	-	-	-	-
Fumigants													
1,2-Dibromoethane (EDB)	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
2,2-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,3-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,3-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Halogenated Aromatic Compounds													
Benzyl chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Chlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
2-Chlorotoluene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
4-Chlorotoluene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,3-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,4-Dichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2,4-Trichlorobenzene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,3,5-Trichlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds													
Dichlorodifluoromethane (Freon 12)	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
Chloromethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
Vinyl chloride	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
Bromomethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
Chloroethane	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
Trichlorofluoromethane (Freon 11)	mg/kg	-	-	<5	-	-	-	-	-	-	-	-	<5
1,1-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Iodomethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,2-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,2-Dichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,1-Trichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloropropene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Carbon Tetrachloride	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Trichloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Dibromomethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,2-Trichloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,3-Dichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Tetrachloroethene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,1,2-Tetrachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,4-Dichloro-2-butene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,4-Dichloro-2-butene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2,3-Trichloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Pentachloroethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dibromo-3-chloropropane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Hexachlorobutadiene	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Trihalomethanes													
Bromodichloromethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Bromoform	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Chloroform	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Dibromochloromethane	mg/kg	-	-	<0.5	-	-	-	-	-	-	-	-	<0.5
Physico-Chemical Parameters													
Moisture Content (dried @ 103°C)	%	-	-	-	14	-	-	-	-	-	18	-	-
Moisture Content	%	15.3	1	15.4	-	-	18.5	18.6	1	18.5	-	-	34.4
weight of sample	g	-	-	320	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls													

E2 - Soil Field Duplicates

		ES2410587		ES2410587	1084484		ES2410231	ES2410231		ES2410231	1083748		ES2411530
		QC100_20240326		BH28_0.3-0.4	QC200_20240326		BH01_2.8-2.9	QC100_20240327		BH01_2.8-2.9	QC200_20240327		ACM-CO05_0.8-0.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		26 Mar 2024	RPD	26 Mar 2024	26 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	27 Mar 2024	27 Mar 2024	RPD	07 Apr 2024
	Unit												
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons													
Benzal Chloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos													
APPROVED IDENTIFIER:	-	-	-	1	-	-	-	-	-	-	-	-	-
Asbestos fibres	g/kg	-	-	0	-	-	-	-	-	-	-	-	-
Asbestos Type	-	-	-	1	-	-	-	-	-	-	-	-	-
Organic Fibre	--	-	-	0	-	-	-	-	-	-	-	-	-
Asbestos (Trace)	-	-	-	0	-	-	-	-	-	-	-	-	-
Synthetic Mineral Fibre	--	-	-	0	-	-	-	-	-	-	-	-	-

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

		ES2411530		ES2411530	1087305		ES2411748	ES2411748		ES2411748	1087307		ES2411748
		QC100_20240407		ACM-CO05_0.8-0.9	QC200_20240407		ACM_TP19_0.6-0.8	QC101_20240408		ACM_TP19_0.6-0.8	QC201_20240408		ACM_TP19_2.8-2.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		07 Apr 2024	RPD	07 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024
	Unit												
Total Recoverable Hydrocarbons													
C6-C10 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0	<10
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0	<10
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C10-C16 fraction	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
>C16-C34 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100
>C34-C40 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0	<100
>C10-C40 fraction (sum)	mg/kg	<50	0	<50	<100	0	<50	<50	0	<50	<100	0	<50
Total Petroleum Hydrocarbons													
C6-C9 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0	<10
C10-C14 fraction	mg/kg	<50	0	<50	<20	0	<50	<50	0	<50	<20	0	<50
C15-C28 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100
C29-C36 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0	<100
C10-C36 fraction (sum)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0	<50
Monocyclic Aromatic Hydrocarbons													
Naphthalene (used F2 calc)	mg/kg	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0	<1
Benzene	mg/kg	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.1	0	<0.2
Toluene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Ethylbenzene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
m&p-Xylene	mg/kg	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0	<0.5
o-Xylene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5
Total Xylenes	mg/kg	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.3	0	<0.5
Total BTEX	mg/kg	<0.2	0	<0.2	-	-	<0.2	<0.2	0	<0.2	-	-	<0.2
Polynuclear Aromatic Hydrocarbons													
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2
Naphthalene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Acenaphthylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Acenaphthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Fluorene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Phenanthrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benz(a)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(k)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(b&j)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(a)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Chrysene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Benzo(g,h,i)perylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Dibenz(a,h)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Indeno(1,2,3-cd)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Sum of PAHs	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5
Metals													
Arsenic	mg/kg	6	18	<5	4.4	0	<5	<5	0	<5	3.4	0	5
Cadmium	mg/kg	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0	<1
Chromium	mg/kg	29	11	26	33	24	33	27	20	33	38	14	18
Copper	mg/kg	34	16	29	40	32	19	14	30	19	22	15	19
Lead	mg/kg	26	8	24	33	32	11	12	9	11	8.7	23	13
Mercury	mg/kg	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Nickel	mg/kg	16	21	13	17	27	20	10	67	20	30	40	3
Zinc	mg/kg	40	13	35	43	21	18	20	11	18	27	40	21
Per- and Poly-fluoroalkyl Substances													
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	0	<0.0005	-	-	-	-	-	-	-	-	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	<0.0002	0	<0.0005	<0.005	0	-	-	-	-	-	-	<0.0002

E2 - Soil Field Duplicates

	Unit	ES2411530 QC100_20240407 Soil 07 Apr 2024	RPD	ES2411530 ACM-CO05_0.8-0.9 Soil 07 Apr 2024	1087305 QC200_20240407 Soil 08 Apr 2024	RPD	ES2411748 ACM_TP19_0.6-0.8 Soil 08 Apr 2024	ES2411748 QC101_20240408 Soil 08 Apr 2024	RPD	ES2411748 ACM_TP19_0.6-0.8 Soil 08 Apr 2024	1087307 QC201_20240408 Soil 08 Apr 2024	RPD	ES2411748 ACM_TP19_2.8-2.9 Soil 08 Apr 2024
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	<0.0002	0	<0.0005	<0.005	0	-	-	-	-	-	-	<0.0002
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	0	<0.002	-	-	-	-	-	-	-	-	<0.001
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	0	<0.0005	-	-	-	-	-	-	-	-	<0.0002
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	0	<0.0005	-	-	-	-	-	-	-	-	<0.0002
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	0	<0.0005	-	-	-	-	-	-	-	-	<0.0002
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	0	<0.0005	<0.005	0	-	-	-	-	-	-	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	-	-	-	-	-	-	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.01	0	-	-	-	-	-	-	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	-	-	-	-	-	-	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	-	-	-	-	-	-	<0.0005
Sum (PFHxS + PFOS)	mg/kg	<0.0002	0	<0.0005	<0.005	0	-	-	-	-	-	-	<0.0002
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	<0.0002	0	<0.0005	-	-	-	-	-	-	-	-	<0.0002
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	-	-	-
Nutrients													
Ammonia (as N)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Phenolic Compounds													
3/4-Methylphenol (m/p-cresol)	mg/kg	<1	0	<1	-	-	-	-	-	-	-	-	<1
Phenol	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
2-Chlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
2-Methylphenol (o-Cresol)	mg/kg	<0.5	0	<0.5	<0.2	0	-	-	-	-	-	-	<0.5
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	<0.4	-	-	-	-	-	-	-	-
Total Cresols	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-

E2 - Soil Field Duplicates

		ES2411530		ES2411530	1087305		ES2411748	ES2411748		ES2411748	1087307		ES2411748
		QC100_20240407		ACM-CO05_0.8-0.9	QC200_20240407		ACM_TP19_0.6-0.8	QC101_20240408		ACM_TP19_0.6-0.8	QC201_20240408		ACM_TP19_2.8-2.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		07 Apr 2024	RPD	07 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024
	Unit												
2-Nitrophenol	mg/kg	<0.5	0	<0.5	<1	0	-	-	-	-	-	-	<0.5
2,4-Dichlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
2,4-Dimethylphenol	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
2,6-Dichlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
4-Chloro-3-methylphenol	mg/kg	<0.5	0	<0.5	<1	0	-	-	-	-	-	-	<0.5
2,4,6-Trichlorophenol	mg/kg	<0.5	0	<0.5	<1	0	-	-	-	-	-	-	<0.5
2,4,5-Trichlorophenol	mg/kg	<0.5	0	<0.5	<1	0	-	-	-	-	-	-	<0.5
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	<5	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	<2	0	<2	<1	0	-	-	-	-	-	-	<2
2,4-Dinitrophenol	mg/kg	-	-	-	<5	-	-	-	-	-	-	-	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	<20	-	-	-	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	<5	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	-	-	-	<20	-	-	-	-	-	-	-	-
Tetrachlorophenols	mg/kg	-	-	-	<10	-	-	-	-	-	-	-	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	<1	-	-	-	-	-	-	-	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	<20	-	-	-	-	-	-	-	-
Organophosphorus Pesticides (OP)													
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)													
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas													

E2 - Soil Field Duplicates

		ES2411530		ES2411530	1087305		ES2411748	ES2411748		ES2411748	1087307		ES2411748
		QC100_20240407		ACM-CO05_0.8-0.9	QC200_20240407		ACM_TP19_0.6-0.8	QC101_20240408		ACM_TP19_0.6-0.8	QC201_20240408		ACM_TP19_2.8-2.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		07 Apr 2024	RPD	07 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024
	Unit												
Description	-	-	-	-	-	-	-	-	-	-	-	-	-
Fumigants													
1,2-Dibromoethane (EDB)	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
2,2-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,3-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,3-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Halogenated Aromatic Compounds													
Benzyl chloride	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
Bromobenzene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Chlorobenzene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
2-Chlorotoluene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
4-Chlorotoluene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
1,3-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
1,4-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
1,2,4-Trichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
1,3,5-Trichlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
Halogenated Aliphatic Compounds													
Dichlorodifluoromethane (Freon 12)	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
Chloromethane	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
Vinyl chloride	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
Bromomethane	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
Chloroethane	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
Trichlorofluoromethane (Freon 11)	mg/kg	<5	0	<5	-	-	-	-	-	-	-	-	<5
1,1-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Iodomethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,2-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,2-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,1-Trichloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Carbon Tetrachloride	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dichloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Trichloroethene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Dibromomethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,2-Trichloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,3-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Tetrachloroethene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,1,2-Tetrachloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
trans-1,4-Dichloro-2-butene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
cis-1,4-Dichloro-2-butene	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,1,2,2-Tetrachloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2,3-Trichloropropane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Pentachloroethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
1,2-Dibromo-3-chloropropane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Hexachlorobutadiene	mg/kg	<0.5	0	<0.5	<0.5	0	-	-	-	-	-	-	<0.5
Trihalomethanes													
Bromodichloromethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Bromoform	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Chloroform	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Dibromochloromethane	mg/kg	<0.5	0	<0.5	-	-	-	-	-	-	-	-	<0.5
Physico-Chemical Parameters													
Moisture Content (dried @ 103°C)	%	-	-	-	34	-	-	-	-	-	11	-	-
Moisture Content	%	38.5	11	34.4	-	-	12.8	18.5	36	12.8	-	-	17.9
weight of sample	g	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls													

E2 - Soil Field Duplicates

		ES2411530		ES2411530	1087305		ES2411748	ES2411748		ES2411748	1087307		ES2411748
		QC100_20240407		ACM-CO05_0.8-0.9	QC200_20240407		ACM_TP19_0.6-0.8	QC101_20240408		ACM_TP19_0.6-0.8	QC201_20240408		ACM_TP19_2.8-2.9
		Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil
		07 Apr 2024	RPD	07 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024
	Unit												
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons													
Benzal Chloride	mg/kg	-	-	-	<0.05	-	-	-	-	-	-	-	-
Benzotrichloride	mg/kg	-	-	-	<0.05	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	<1	-	-	-	-	-	-	-	-
Hexachloroethane	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
Pentachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	-	-	-
Asbestos													
APPROVED IDENTIFIER:	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos fibres	g/kg	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Type	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos (Trace)	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Mineral Fibre	--	-	-	-	-	-	-	-	-	-	-	-	-

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

E2 - Soil Field Duplicates

		ES2411748		ES2411748	1087307		ES2411530	ES2411530		ES2411530	1087305	
		QC100_20240408		ACM_TP19_2.8-2.9	QC200_20240408		BH06_2.0-2.5	QC100_20240408		BH06_2.0-2.5	QC200_20240408	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD
	Unit											
Total Recoverable Hydrocarbons												
C6-C10 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
C6-C10 fraction (minus BTEX)(F1)	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
>C10-C16 (minus Naphthalene)(F2)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
>C10-C16 fraction	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
>C16-C34 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
>C34-C40 fraction	mg/kg	<100	0	<100	<100	0	<100	<100	0	<100	<100	0
>C10-C40 fraction (sum)	mg/kg	<50	0	<50	<100	0	<50	<50	0	<50	<100	0
Total Petroleum Hydrocarbons												
C6-C9 fraction	mg/kg	<10	0	<10	<20	0	<10	<10	0	<10	<20	0
C10-C14 fraction	mg/kg	<50	0	<50	<20	0	<50	<50	0	<50	<20	0
C15-C28 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C29-C36 fraction	mg/kg	<100	0	<100	<50	0	<100	<100	0	<100	<50	0
C10-C36 fraction (sum)	mg/kg	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
Monocyclic Aromatic Hydrocarbons												
Naphthalene (used F2 calc)	mg/kg	<1	0	<1	<0.5	0	<1	<1	0	<1	<0.5	0
Benzene	mg/kg	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2	<0.1	0
Toluene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Ethylbenzene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
m&p-Xylene	mg/kg	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
o-Xylene	mg/kg	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5	<0.1	0
Total Xylenes	mg/kg	<0.5	0	<0.5	<0.3	0	<0.5	<0.5	0	<0.5	<0.3	0
Total BTEX	mg/kg	<0.2	0	<0.2	-	-	<0.2	<0.2	0	<0.2	-	-
Polynuclear Aromatic Hydrocarbons												
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
Naphthalene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Acenaphthylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Acenaphthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Fluorene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Phenanthrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benz(a)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(k)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(b&j)fluoranthene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(a)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Chrysene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(g,h,i)perylene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Dibenz(a,h)anthracene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Indeno(1,2,3-cd)pyrene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Sum of PAHs	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Metals												
Arsenic	mg/kg	<5	0	5	4.8	4	<5	<5	0	<5	11	75
Cadmium	mg/kg	<1	0	<1	<0.4	0	<1	<1	0	<1	<0.4	0
Chromium	mg/kg	34	62	18	18	0	13	11	17	13	18	32
Copper	mg/kg	20	5	19	13	38	8	8	0	8	14	55
Lead	mg/kg	9	36	13	14	7	9	10	11	9	16	56
Mercury	mg/kg	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Nickel	mg/kg	25	157	3	<5	0	<2	<2	0	<2	<5	0
Zinc	mg/kg	20	5	21	20	5	6	8	29	6	17	96
Per- and Poly-fluoroalkyl Substances												
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	0	<0.0002	-	-	<0.0002	<0.0002	0	<0.0002	-	-
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0

E2 - Soil Field Duplicates

	Unit	ES2411748 QC100_20240408 Soil 08 Apr 2024	RPD	ES2411748 ACM_TP19_2.8-2.9 Soil 08 Apr 2024	1087307 QC200_20240408 Soil 08 Apr 2024	RPD	ES2411530 BH06_2.0-2.5 Soil 08 Apr 2024	ES2411530 QC100_20240408 Soil 08 Apr 2024	RPD	ES2411530 BH06_2.0-2.5 Soil 08 Apr 2024	1087305 QC200_20240408 Soil 08 Apr 2024	RPD
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonic acid (PFOS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanesulfonic Acid (PFNS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecane sulfonic acid (PFDS)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	0	<0.001	-	-	<0.001	<0.001	0	<0.001	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	0	<0.0002	-	-	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	0	<0.0002	-	-	<0.0002	<0.0002	0	<0.0002	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	0	<0.0002	-	-	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005	0	<0.0005	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005	0	<0.0005	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	0	<0.0005	-	-	<0.0005	<0.0005	0	<0.0005	-	-
Sum (PFHxS + PFOS)	mg/kg	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Sum of PFAS	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Sum of WA DWER PFAS (n=10)*	mg/kg	<0.0002	0	<0.0002	-	-	<0.0002	<0.0002	0	<0.0002	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	<0.005	-
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	-	-	-	<0.005	-	-	-	-	-	<0.005	-
Nutrients												
Ammonia (as N)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Phenolic Compounds												
3/4-Methylphenol (m/p-cresol)	mg/kg	<1	0	<1	-	-	<1	<1	0	<1	-	-
Phenol	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
2-Chlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
2-Methylphenol (o-Cresol)	mg/kg	<0.5	0	<0.5	<0.2	0	<0.5	<0.5	0	<0.5	<0.2	0
3&4-Methylphenol (m&p-Cresol)	mg/kg	-	-	-	<0.4	-	-	-	-	-	<0.4	-
Total Cresols	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-

E2 - Soil Field Duplicates

		ES2411748		ES2411748	1087307		ES2411530	ES2411530		ES2411530	1087305	
		QC100_20240408		ACM_TP19_2.8-2.9	QC200_20240408		BH06_2.0-2.5	QC100_20240408		BH06_2.0-2.5	QC200_20240408	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD
	Unit											
2-Nitrophenol	mg/kg	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
2,4-Dichlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
2,4-Dimethylphenol	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
2,6-Dichlorophenol	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
4-Chloro-3-methylphenol	mg/kg	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
2,4,6-Trichlorophenol	mg/kg	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
2,4,5-Trichlorophenol	mg/kg	<0.5	0	<0.5	<1	0	<0.5	<0.5	0	<0.5	<1	0
4,6-Dinitro-2-methylphenol	mg/kg	-	-	-	<5	-	-	-	-	-	<5	-
Pentachlorophenol	mg/kg	<2	0	<2	<1	0	<2	<2	0	<2	<1	0
2,4-Dinitrophenol	mg/kg	-	-	-	<5	-	-	-	-	-	<5	-
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	-	-	-	<20	-	-	-	-	-	<20	-
4-Nitrophenol	mg/kg	-	-	-	<5	-	-	-	-	-	<5	-
Dinoseb	mg/kg	-	-	-	<20	-	-	-	-	-	<20	-
Tetrachlorophenols	mg/kg	-	-	-	<10	-	-	-	-	-	<10	-
Sum of Phenols (halogenated)	mg/kg	-	-	-	<1	-	-	-	-	-	<1	-
Sum of Phenols (non-halogenated)	mg/kg	-	-	-	<20	-	-	-	-	-	<20	-
Organophosphorus Pesticides (OP)												
Azinphos Methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Bromophos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Carbophenothion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorfenvinphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorpyrifos-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Demeton-S-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Diazinon	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dichlorvos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Ethion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Fenamiphos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Fenthion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Malathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Monocrotophos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Parathion	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Parathion-methyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Pirimphos-ethyl	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Prothiofos	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides (OC)												
Aldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Aldrin + Dieldrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
a-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
b-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
d-BHC	mg/kg	-	-	-	-	-	-	-	-	-	-	-
g-BHC (Lindane)	mg/kg	-	-	-	-	-	-	-	-	-	-	-
cis-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
trans-Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlordane	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDE	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDT	mg/kg	-	-	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 1	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan 2	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endosulfan sulfate	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin aldehyde	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Endrin ketone	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Heptachlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Heptachlor epoxide	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene (HCB)	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
Methoxychlor	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas												

E2 - Soil Field Duplicates

		ES2411748		ES2411748	1087307		ES2411530	ES2411530		ES2411530	1087305	
		QC100_20240408		ACM_TP19_2.8-2.9	QC200_20240408		BH06_2.0-2.5	QC100_20240408		BH06_2.0-2.5	QC200_20240408	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD
	Unit											
Description	-	-	-	-	-	-	-	-	-	-	-	-
Fumigants												
1,2-Dibromoethane (EDB)	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,2-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
2,2-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
cis-1,3-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
trans-1,3-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Halogenated Aromatic Compounds												
Benzyl chloride	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
Bromobenzene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Chlorobenzene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
2-Chlorotoluene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
4-Chlorotoluene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,2-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
1,3-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
1,4-Dichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
1,2,3,4-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
1,2,3,5-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
1,2,3-Trichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
1,2,4-Trichlorobenzene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
1,3,5-Trichlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
Halogenated Aliphatic Compounds												
Dichlorodifluoromethane (Freon 12)	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
Chloromethane	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
Vinyl chloride	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
Bromomethane	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
Chloroethane	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
Trichlorofluoromethane (Freon 11)	mg/kg	<5	0	<5	-	-	<5	<5	0	<5	-	-
1,1-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Iodomethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1-Dichloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
cis-1,2-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
trans-1,2-Dichloroethene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1,1-Trichloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1-Dichloropropene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Carbon Tetrachloride	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,2-Dichloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Trichloroethene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Dibromomethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1,2-Trichloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,3-Dichloropropane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Tetrachloroethene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1,1,2-Tetrachloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
trans-1,4-Dichloro-2-butene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
cis-1,4-Dichloro-2-butene	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,1,2,2-Tetrachloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,2,3-Trichloropropane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Pentachloroethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
1,2-Dibromo-3-chloropropane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Hexachlorobutadiene	mg/kg	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Trihalomethanes												
Bromodichloromethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Bromoform	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Chloroform	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Dibromochloromethane	mg/kg	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
Physico-Chemical Parameters												
Moisture Content (dried @ 103°C)	%	-	-	-	19	-	-	-	-	-	20	-
Moisture Content	%	10.6	51	17.9	-	-	19.2	20.1	5	19.2	-	-
weight of sample	g	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls												

E2 - Soil Field Duplicates

		ES2411748		ES2411748	1087307		ES2411530	ES2411530		ES2411530	1087305	
		QC100_20240408		ACM_TP19_2.8-2.9	QC200_20240408		BH06_2.0-2.5	QC100_20240408		BH06_2.0-2.5	QC200_20240408	
		Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD	08 Apr 2024	08 Apr 2024	RPD
	Unit											
Polychlorinated Biphenyls	mg/kg	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons												
Benzal Chloride	mg/kg	-	-	-	<0.05	-	-	-	-	-	<0.05	-
Benzotrichloride	mg/kg	-	-	-	<0.05	-	-	-	-	-	<0.05	-
Hexachlorocyclopentadiene	mg/kg	-	-	-	<1	-	-	-	-	-	<1	-
Hexachloroethane	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
Pentachlorobenzene	mg/kg	-	-	-	<0.5	-	-	-	-	-	<0.5	-
Asbestos												
APPROVED IDENTIFIER:	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos fibres	g/kg	-	-	-	-	-	-	-	-	-	-	-
Asbestos Type	-	-	-	-	-	-	-	-	-	-	-	-
Organic Fibre	--	-	-	-	-	-	-	-	-	-	-	-
Asbestos (Trace)	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Mineral Fibre	--	-	-	-	-	-	-	-	-	-	-	-

*RPDs have only been considered where a concentration i
**Elevated RPDs are highlighted as per QAQC Profile setti
***Interlab Duplicates are matched on a per compound b

Table E3 - RPD - Groundwater Duplicates

			Lab Report Number	ES2412153	ES2412153		ES2412153	1089086	
			Field ID	BH26	QC100_20240411		BH26	QC200_20240411	
			Matrix Type	Water	Water		Water	Water	
			Date	11 Apr 2024	11 Apr 2024	RPD	11 Apr 2024	11 Apr 2024	RPD
	Unit	LOR	RPD						
Total Recoverable Hydrocarbons									
C6-C10 fraction	µg/L	20		<20	<20	0	<20	<20	0
C6-C10 fraction (minus BTEX)(F1)	µg/L	20		<20	<20	0	<20	<20	0
>C10-C16 (minus Naphthalene)(F2)	µg/L	50		<100	<100	0	<100	<50	0
>C10-C16 fraction	µg/L	50		<100	<100	0	<100	<50	0
>C16-C34 fraction	µg/L	100		120	110	9	120	<100	18
>C34-C40 fraction	µg/L	100		<100	<100	0	<100	<100	0
>C10-C40 fraction (sum)	µg/L	100		120	110	9	120	<100	18
Total Petroleum Hydrocarbons									
C6-C9 fraction	µg/L	20		<20	<20	0	<20	<20	0
C10-C14 fraction	µg/L	50		<50	<50	0	<50	<50	0
C15-C28 fraction	µg/L	100		110	110	0	110	<100	10
C29-C36 fraction	µg/L	50		<50	<50	0	<50	<100	0
C10-C36 fraction (sum)	µg/L	50		110	110	0	110	<100	10
Monocyclic Aromatic Hydrocarbons									
Naphthalene (used F2 calc)	µg/L	5		<5	<5	0	<5	<10	0
Benzene	µg/L	1		<1	<1	0	<1	<1	0
Toluene	µg/L	1		<2	<2	0	<2	<1	0
Ethylbenzene	µg/L	1		<2	<2	0	<2	<1	0
m&p-Xylene	µg/L	2		<2	<2	0	<2	<2	0
o-Xylene	µg/L	1		<2	<2	0	<2	<1	0
Total Xylenes	µg/L	2		<2	<2	0	<2	<3	0
Total BTEX	µg/L	1		<1	<1	0	<1	-	-
Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene TEQ calc (Zero)	µg/L	0.5		<0.5	<0.5	0	<0.5	-	-
Naphthalene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Acenaphthylene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Acenaphthene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Anthracene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Fluorene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Phenanthrene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Fluoranthene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Benz(a)anthracene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Benzo(k)fluoranthene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Benzo(b&j)fluoranthene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Benzo(a)pyrene	µg/L	0.5		<0.5	<0.5	0	<0.5	<1	0
Chrysene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Pyrene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Benzo(g,h,i)perylene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Dibenz(a,h)anthracene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Indeno(1,2,3-cd)pyrene	µg/L	1		<1.0	<1.0	0	<1.0	<1	0
Sum of PAHs	µg/L	0.5		<0.5	<0.5	0	<0.5	<1	0
Metals									
Arsenic	mg/L	0.001		<0.001	<0.001	0	<0.001	<0.001	0
Cadmium	mg/L	0.0001		<0.0001	<0.0001	0	<0.0001	<0.0002	0
Chromium	mg/L	0.001		<0.001	<0.001	0	<0.001	<0.001	0
Copper	mg/L	0.001		0.005	<0.001	133	0.005	<0.001	133
Lead	mg/L	0.001		<0.001	<0.001	0	<0.001	<0.001	0
Mercury	mg/L	0.0001		<0.0001	<0.0001	0	<0.0001	<0.0001	0
Nickel	mg/L	0.001		0.006	0.005	18	0.006	0.004	40
Zinc	mg/L	0.005		0.026	0.024	8	0.026	0.017	42
Per- and Poly-fluoroalkyl Substances									
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02		<0.02	<0.02	0	<0.02	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01		<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01		0.01	0.01	0	0.01	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1		<0.1	<0.1	0	<0.1	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02		<0.02	<0.02	0	<0.02	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02		<0.02	<0.02	0	<0.02	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02		<0.02	<0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01		<0.01	<0.01	0	<0.01	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05		<0.05	<0.05	0	<0.05	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05		<0.05	<0.05	0	<0.05	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05		<0.05	<0.05	0	<0.05	-	-
Sum (PFHxS + PFOS)	µg/L	0.01		0.01	0.01	0	0.01	<0.01	0
Sum of WA DWER PFAS (n=10)*	µg/L	0.01		0.01	0.01	0	0.01	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)	µg/L	0.01		-	-	-	-	<0.01	-
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-	-	-	<0.01	-
Nutrients									
Ammonia (as N)	mg/L	0.01		0.08	0.10	22	0.08	0.10	22
Phenolic Compounds									
3/4-Methylphenol (m/p-cresol)	µg/L	2		<2.0	<2.0	0	<2.0	-	-
Phenol	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
2-Chlorophenol	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
2-Methylphenol (o-Cresol)	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
3&4-Methylphenol (m&p-Cresol)	µg/L	6		-	-	-	-	<6	-
Total Cresols	µg/L	10		-	-	-	-	<10	-
2-Nitrophenol	µg/L	1		<1.0	<1.0	0	<1.0	<10	0
2,4-Dichlorophenol	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
2,4-Dimethylphenol	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
2,6-Dichlorophenol	µg/L	1		<1.0	<1.0	0	<1.0	<3	0
4-Chloro-3-methylphenol	µg/L	1		<1.0	<1.0	0	<1.0	<10	0
2,4,6-Trichlorophenol	µg/L	1		<1.0	<1.0	0	<1.0	<10	0
2,4,5-Trichlorophenol	µg/L	1		<1.0	<1.0	0	<1.0	<10	0
4,6-Dinitro-2-methylphenol	µg/L	30		-	-	-	-	<30	-
Pentachlorophenol	µg/L	2		<2.0	<2.0	0	<2.0	<10	0

Table E3 - RPD - Groundwater Duplicates

			Lab Report Number	ES2412153	ES2412153		ES2412153	1089086	
			Field ID	BH26	QC100_20240411		BH26	QC200_20240411	
			Matrix Type	Water	Water		Water	Water	
			Date	11 Apr 2024	11 Apr 2024	RPD	11 Apr 2024	11 Apr 2024	RPD
	Unit	LOR	RPD						
2,4-Dinitrophenol	µg/L	30		-	-	-	-	<30	-
2-Cyclohexyl-4,6-dinitrophenol	µg/L	100		-	-	-	-	<100	-
4-Nitrophenol	µg/L	30		-	-	-	-	<30	-
Dinoseb	µg/L	100		-	-	-	-	<100	-
Tetrachlorophenols	µg/L	30		-	-	-	-	<30	-
Sum of Phenols (halogenated)	µg/L	10		-	-	-	-	<10	-
Sum of Phenols (non-halogenated)	µg/L	100		-	-	-	-	<100	-
Organochlorine Pesticides (OC)									
Hexachlorobenzene (HCB)	µg/L	5		-	-	-	-	<5	-
Fumigants									
1,2-Dibromoethane (EDB)	µg/L	5		<5	<5	0	<5	-	-
1,2-Dichloropropane	µg/L	5		<5	<5	0	<5	-	-
2,2-Dichloropropane	µg/L	5		<5	<5	0	<5	-	-
cis-1,3-Dichloropropene	µg/L	5		<5	<5	0	<5	-	-
trans-1,3-Dichloropropene	µg/L	5		<5	<5	0	<5	-	-
Halogenated Aromatic Compounds									
Benzyl chloride	µg/L	5		-	-	-	-	<5	-
Bromobenzene	µg/L	5		<5	<5	0	<5	-	-
Chlorobenzene	µg/L	5		<5	<5	0	<5	-	-
2-Chlorotoluene	µg/L	5		<5	<5	0	<5	-	-
4-Chlorotoluene	µg/L	5		<5	<5	0	<5	-	-
1,2-Dichlorobenzene	µg/L	5		<5	<5	0	<5	<5	0
1,3-Dichlorobenzene	µg/L	5		<5	<5	0	<5	<5	0
1,4-Dichlorobenzene	µg/L	5		<5	<5	0	<5	<5	0
1,2,3,4-Tetrachlorobenzene	µg/L	5		-	-	-	-	<5	-
1,2,3,5-Tetrachlorobenzene	µg/L	5		-	-	-	-	<5	-
1,2,4,5-Tetrachlorobenzene	µg/L	5		-	-	-	-	<5	-
1,2,3-Trichlorobenzene	µg/L	5		<5	<5	0	<5	<5	0
1,2,4-Trichlorobenzene	µg/L	5		<5	<5	0	<5	<5	0
1,3,5-Trichlorobenzene	µg/L	5		-	-	-	-	<5	-
Halogenated Aliphatic Compounds									
Dichlorodifluoromethane (Freon 12)	µg/L	50		<50	<50	0	<50	-	-
Chloromethane	µg/L	50		<50	<50	0	<50	-	-
Vinyl chloride	µg/L	50		<50	<50	0	<50	-	-
Bromomethane	µg/L	50		<50	<50	0	<50	-	-
Chloroethane	µg/L	50		<50	<50	0	<50	-	-
Trichlorofluoromethane (Freon 11)	µg/L	50		<50	<50	0	<50	-	-
1,1-Dichloroethene	µg/L	5		<5	<5	0	<5	-	-
Iodomethane	µg/L	5		<5	<5	0	<5	-	-
1,1-Dichloroethane	µg/L	5		<5	<5	0	<5	-	-
cis-1,2-Dichloroethene	µg/L	5		<5	<5	0	<5	-	-
trans-1,2-Dichloroethene	µg/L	5		<5	<5	0	<5	-	-
1,1,1-Trichloroethane	µg/L	5		<5	<5	0	<5	-	-
1,1-Dichloropropene	µg/L	5		<5	<5	0	<5	-	-
Carbon Tetrachloride	µg/L	5		<5	<5	0	<5	-	-
1,2-Dichloroethane	µg/L	5		<5	<5	0	<5	-	-
Trichloroethene	µg/L	5		<5	<5	0	<5	-	-
Dibromomethane	µg/L	5		<5	<5	0	<5	-	-
1,1,2-Trichloroethane	µg/L	5		<5	<5	0	<5	-	-
1,3-Dichloropropane	µg/L	5		<5	<5	0	<5	-	-
Tetrachloroethene	µg/L	5		<5	<5	0	<5	-	-
1,1,1,2-Tetrachloroethane	µg/L	5		<5	<5	0	<5	-	-
trans-1,4-Dichloro-2-butene	µg/L	5		<5	<5	0	<5	-	-
cis-1,4-Dichloro-2-butene	µg/L	5		<5	<5	0	<5	-	-
1,1,2,2-Tetrachloroethane	µg/L	5		<5	<5	0	<5	-	-
1,2,3-Trichloropropane	µg/L	5		<5	<5	0	<5	-	-
Pentachloroethane	µg/L	5		<5	<5	0	<5	-	-
1,2-Dibromo-3-chloropropane	µg/L	5		<5	<5	0	<5	-	-
Hexachlorobutadiene	µg/L	5		<5	<5	0	<5	<5	0
Trihalomethanes									
Bromodichloromethane	µg/L	5		<5	<5	0	<5	-	-
Bromoform	µg/L	5		<5	<5	0	<5	-	-
Chloroform	µg/L	5		<5	<5	0	<5	-	-
Dibromochloromethane	µg/L	5		<5	<5	0	<5	-	-
Chlorinated Hydrocarbons									
Benzal Chloride	µg/L	0.1		-	-	-	-	<0.1	-
Benzotrichloride	µg/L	0.1		-	-	-	-	<0.1	-
Hexachlorocyclopentadiene	µg/L	5		-	-	-	-	<5	-
Hexachloroethane	µg/L	5		-	-	-	-	<5	-
Pentachlorobenzene	µg/L	5		-	-	-	-	<5	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs : 30 %)**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Methods in the row header relate to those used in the primary laboratory**

Table E4 - Field Trip Blanks - Soil

				Total Recoverable Hydrocarbons		Total Petroleum Hydrocarbons	Monocyclic Aromatic Hydrocarbons							
				C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	C6-C9 fraction	Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Total BTEX
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				10	10	10	1	0.2	0.5	0.5	0.5	0.5	0.5	0.2
Lab Report Number	**Field ID**	**Matrix Type**	**Date**											
ES2341301	**TRIP BLANK**	**Soil**	**27 Nov 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2343795	**Trip Blank**	**Soil**	**28 Nov 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2343853	**Trip Blank**	**Soil**	**11 Dec 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2343854	**Trip Blank**	**Soil**	**11 Dec 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2344222	**Trip Blank**	**Soil**	**15 Dec 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2344603	**Trip Blank**	**Soil**	**15 Dec 2023**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2406391	**Trip Blank**	**Soil**	**26 Feb 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2407037	**TRIP BLANK**	**Soil**	**26 Feb 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2407462	**TRIP BLANK**	**Soil**	**26 Feb 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2408075	**TRIP BLANK**	**Soil**	**04 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2409702	**TRIP BLANK**	**Soil**	**04 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2409727	**Trip Blank**	**Soil**	**04 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2409806	**TRIP BLANK**	**Soil**	**18 Mar 2024**	-	-	<10	-	-	-	-	-	-	-	-
ES2409869	**TRIP BLANK - 1**	**Soil**	**18 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2410544	**Trip Blank**	**Soil**	**25 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2410587	**Trip Blank**	**Soil**	**18 Mar 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2410959	**TRIP BLANK**	**Soil**	**02 Apr 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2411530	**TRIP BLANK**	**Soil**	**02 Apr 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2411748	**TRIP BLANK**	**Soil**	**02 Apr 2024**	<10	<10	<10	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

Table E5 - Field Trip Spikes - Soil

Lab_Report	SampleCode	Field_ID	Compound	Trip_Spike_Result	Trip_Spike_Control	Units	Spike Recovery %	Acceptable
ES2410959	ES2410959015	TRIP SPIKE	Benzene	<0.2	0.2	mg/kg	100	Y
ES2410959	ES2410959015	TRIP SPIKE	Ethylbenzene	7.3	9	mg/kg	81	Y
ES2410959	ES2410959015	TRIP SPIKE	meta- & para-Xylene	6.3	7.7	mg/kg	81	Y
ES2410959	ES2410959015	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2410959	ES2410959015	TRIP SPIKE	ortho-Xylene	2.1	2.6	mg/kg	80	Y
ES2410959	ES2410959015	TRIP SPIKE	Sum of BTEX	21.9	27.1	mg/kg	80	Y
ES2410959	ES2410959015	TRIP SPIKE	Toluene	6.2	7.6	mg/kg	81	Y
ES2410959	ES2410959015	TRIP SPIKE	Total Xylenes	8.4	10.3	mg/kg	81	Y
ES2407037	ES2407037011	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2407037	ES2407037011	TRIP SPIKE	Ethylbenzene	6.4	8.4	mg/kg	76	Y
ES2407037	ES2407037011	TRIP SPIKE	meta- & para-Xylene	6.9	8.8	mg/kg	78	Y
ES2407037	ES2407037011	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2407037	ES2407037011	TRIP SPIKE	ortho-Xylene	3	3.8	mg/kg	78	Y
ES2407037	ES2407037011	TRIP SPIKE	Sum of BTEX	21.6	26.1	mg/kg	82	Y
ES2407037	ES2407037011	TRIP SPIKE	Toluene	5.3	5.1	mg/kg	103	Y
ES2407037	ES2407037011	TRIP SPIKE	Total Xylenes	9.9	12.6	mg/kg	78	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Ethylbenzene	5.3	6.2	mg/kg	85	Y
ES2407462	ES2407462006	TRIP SPIKE -10	meta- & para-Xylene	5.1	5.9	mg/kg	86	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Naphthalene	<1	<1	mg/kg	100	Y
ES2407462	ES2407462006	TRIP SPIKE -10	ortho-Xylene	2.4	2.9	mg/kg	82	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Sum of BTEX	16.7	19.6	mg/kg	85	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Toluene	3.9	4.6	mg/kg	84	Y
ES2407462	ES2407462006	TRIP SPIKE -10	Total Xylenes	7.5	8.8	mg/kg	85	Y
ES2411530	ES2411530013	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2411530	ES2411530013	TRIP SPIKE	Ethylbenzene	7.2	7.8	mg/kg	92	Y
ES2411530	ES2411530013	TRIP SPIKE	meta- & para-Xylene	7.2	8.3	mg/kg	86	Y
ES2411530	ES2411530013	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2411530	ES2411530013	TRIP SPIKE	ortho-Xylene	3	3.4	mg/kg	88	Y
ES2411530	ES2411530013	TRIP SPIKE	Sum of BTEX	23.8	26.1	mg/kg	91	Y
ES2411530	ES2411530013	TRIP SPIKE	Toluene	6.4	6.6	mg/kg	96	Y
ES2411530	ES2411530013	TRIP SPIKE	Total Xylenes	10.2	11.7	mg/kg	87	Y
ES2411748	ES2411748013	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2411748	ES2411748013	TRIP SPIKE	Ethylbenzene	3.8	5.4	mg/kg	70	Y
ES2411748	ES2411748013	TRIP SPIKE	meta- & para-Xylene	3.9	5.5	mg/kg	70	Y
ES2411748	ES2411748013	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2411748	ES2411748013	TRIP SPIKE	ortho-Xylene	1.7	2.3	mg/kg	73	Y
ES2411748	ES2411748013	TRIP SPIKE	Sum of BTEX	12.8	18	mg/kg	71	Y
ES2411748	ES2411748013	TRIP SPIKE	Toluene	3.4	4.8	mg/kg	70	Y
ES2411748	ES2411748013	TRIP SPIKE	Total Xylenes	5.6	7.8	mg/kg	71	Y
ES2408075	ES2408075013	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2408075	ES2408075013	TRIP SPIKE	Ethylbenzene	7	8.3	mg/kg	84	Y
ES2408075	ES2408075013	TRIP SPIKE	meta- & para-Xylene	7.4	8.8	mg/kg	84	Y
ES2408075	ES2408075013	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2408075	ES2408075013	TRIP SPIKE	ortho-Xylene	3	3.6	mg/kg	83	Y
ES2408075	ES2408075013	TRIP SPIKE	Sum of BTEX	22	26.2	mg/kg	83	Y
ES2408075	ES2408075013	TRIP SPIKE	Toluene	4.6	5.5	mg/kg	83	Y
ES2408075	ES2408075013	TRIP SPIKE	Total Xylenes	10.4	12.4	mg/kg	83	Y
ES2343795	ES2343795012	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2343795	ES2343795012	Trip Spike	Ethylbenzene	3.8	5.3	mg/kg	71	Y
ES2343795	ES2343795012	Trip Spike	meta- & para-Xylene	4	5.4	mg/kg	74	Y
ES2343795	ES2343795012	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2343795	ES2343795012	Trip Spike	ortho-Xylene	1.6	2.3	mg/kg	69	Y
ES2343795	ES2343795012	Trip Spike	Sum of BTEX	13	18	mg/kg	72	Y
ES2343795	ES2343795012	Trip Spike	Toluene	3.6	5	mg/kg	72	Y
ES2343795	ES2343795012	Trip Spike	Total Xylenes	5.6	7.7	mg/kg	72	Y
ES2343853	ES2343853013	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2343853	ES2343853013	Trip Spike	Ethylbenzene	5.5	7.8	mg/kg	70	Y
ES2343853	ES2343853013	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2343853	ES2343853013	Trip Spike	Ethylbenzene	5.5	7.8	mg/kg	70	Y
ES2343853	ES2343853013	Trip Spike	meta- & para-Xylene	5.9	8.2	mg/kg	71	Y
ES2343853	ES2343853013	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2343853	ES2343853013	Trip Spike	ortho-Xylene	2.3	3.2	mg/kg	71	Y
ES2343853	ES2343853013	Trip Spike	Sum of BTEX	18.6	26.2	mg/kg	70	Y
ES2343853	ES2343853013	Trip Spike	Toluene	4.9	7	mg/kg	70	Y
ES2343853	ES2343853013	Trip Spike	Total Xylenes	8.2	11.4	mg/kg	71	Y
ES2343854	ES2343854023	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2343854	ES2343854023	Trip Spike	Ethylbenzene	7.4	7.5	mg/kg	98	Y
ES2343854	ES2343854023	Trip Spike	meta- & para-Xylene	7.8	7.9	mg/kg	98	Y
ES2343854	ES2343854023	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2343854	ES2343854023	Trip Spike	ortho-Xylene	3	3	mg/kg	100	Y
ES2343854	ES2343854023	Trip Spike	Sum of BTEX	24.8	25.2	mg/kg	98	Y
ES2343854	ES2343854023	Trip Spike	Toluene	6.6	6.8	mg/kg	97	Y
ES2343854	ES2343854023	Trip Spike	Total Xylenes	10.8	10.9	mg/kg	99	Y
ES2344222	ES2344222018	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2344222	ES2344222018	Trip Spike	Ethylbenzene	5.2	7.1	mg/kg	73	Y
ES2344222	ES2344222018	Trip Spike	meta- & para-Xylene	5.7	7.7	mg/kg	74	Y
ES2344222	ES2344222018	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2344222	ES2344222018	Trip Spike	ortho-Xylene	2.4	3.2	mg/kg	75	Y
ES2344222	ES2344222018	Trip Spike	Sum of BTEX	17.3	23.5	mg/kg	73	Y
ES2344222	ES2344222018	Trip Spike	Toluene	4	5.5	mg/kg	72	Y
ES2344222	ES2344222018	Trip Spike	Total Xylenes	8.1	10.9	mg/kg	74	Y
ES2409702	ES2409702027	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2409702	ES2409702027	TRIP SPIKE	Ethylbenzene	5.4	6.6	mg/kg	81	Y
ES2409702	ES2409702027	TRIP SPIKE	meta- & para-Xylene	6.1	7.2	mg/kg	84	Y
ES2409702	ES2409702027	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y

Table E5 - Field Trip Spikes - Soil

Lab_Report	SampleCode	Field_ID	Compound	Trip_Spike_Result	Trip_Spike_Control	Units	Spike Recovery %	Acceptable
ES2409702	ES2409702027	TRIP SPIKE	ortho-Xylene	2.4	2.9	mg/kg	82	Y
ES2409702	ES2409702027	TRIP SPIKE	Sum of BTEX	16.9	20.5	mg/kg	82	Y
ES2409702	ES2409702027	TRIP SPIKE	Toluene	3	3.8	mg/kg	78	Y
ES2409702	ES2409702027	TRIP SPIKE	Total Xylenes	8.5	10.1	mg/kg	84	Y
ES2409727	ES2409727019	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2409727	ES2409727019	Trip Spike	Ethylbenzene	6.8	7.8	mg/kg	87	Y
ES2409727	ES2409727019	Trip Spike	meta- & para-Xylene	7.6	8.6	mg/kg	88	Y
ES2409727	ES2409727019	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2409727	ES2409727019	Trip Spike	ortho-Xylene	3	3.4	mg/kg	88	Y
ES2409727	ES2409727019	Trip Spike	Sum of BTEX	21.4	24.4	mg/kg	87	Y
ES2409727	ES2409727019	Trip Spike	Toluene	4	4.6	mg/kg	86	Y
ES2409727	ES2409727019	Trip Spike	Total Xylenes	10.6	12	mg/kg	88	Y
ES2344603	ES2344603020	Trip Spike 6	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2344603	ES2344603020	Trip Spike 6	Ethylbenzene	4.2	5.6	mg/kg	75	Y
ES2344603	ES2344603020	Trip Spike 6	meta- & para-Xylene	4.4	5.9	mg/kg	74	Y
ES2344603	ES2344603020	Trip Spike 6	Naphthalene	<1	<1	mg/kg	100	Y
ES2344603	ES2344603020	Trip Spike 6	ortho-Xylene	1.7	2.3	mg/kg	73	Y
ES2344603	ES2344603020	Trip Spike 6	Sum of BTEX	14	18.7	mg/kg	74	Y
ES2344603	ES2344603020	Trip Spike 6	Toluene	3.7	4.9	mg/kg	75	Y
ES2344603	ES2344603020	Trip Spike 6	Total Xylenes	6.1	8.2	mg/kg	74	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Ethylbenzene	4	4.9	mg/kg	81	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	meta- & para-Xylene	4.3	5.2	mg/kg	82	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Naphthalene	<1	<1	mg/kg	100	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	ortho-Xylene	1.8	2.2	mg/kg	81	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Sum of BTEX	13.7	16.8	mg/kg	81	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Toluene	3.6	4.5	mg/kg	80	Y
ES2409869	ES2409869038	TRIP SPIKE - 1	Total Xylenes	6.1	7.4	mg/kg	82	Y
ES2409806	ES2409806012	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2409806	ES2409806012	TRIP SPIKE	Ethylbenzene	4.1	4.3	mg/kg	95	Y
ES2409806	ES2409806012	TRIP SPIKE	meta- & para-Xylene	4.6	4.7	mg/kg	97	Y
ES2409806	ES2409806012	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2409806	ES2409806012	TRIP SPIKE	ortho-Xylene	2.1	2.2	mg/kg	95	Y
ES2409806	ES2409806012	TRIP SPIKE	Sum of BTEX	14.5	14.9	mg/kg	97	Y
ES2409806	ES2409806012	TRIP SPIKE	Toluene	3.7	3.7	mg/kg	100	Y
ES2409806	ES2409806012	TRIP SPIKE	Total Xylenes	6.7	6.9	mg/kg	97	Y
ES2406391	ES2406391009	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2406391	ES2406391009	Trip Spike	Ethylbenzene	7.6	8.2	mg/kg	92	Y
ES2406391	ES2406391009	Trip Spike	meta- & para-Xylene	7.6	8.1	mg/kg	93	Y
ES2406391	ES2406391009	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2406391	ES2406391009	Trip Spike	ortho-Xylene	3.3	3.5	mg/kg	94	Y
ES2406391	ES2406391009	Trip Spike	Sum of BTEX	23.6	25	mg/kg	94	Y
ES2406391	ES2406391009	Trip Spike	Toluene	5.1	5.2	mg/kg	98	Y
ES2406391	ES2406391009	Trip Spike	Total Xylenes	10.9	11.6	mg/kg	93	Y
ES2410544	ES2410544036	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2410544	ES2410544036	Trip Spike	Ethylbenzene	5.9	6.8	mg/kg	86	Y
ES2410544	ES2410544036	Trip Spike	meta- & para-Xylene	6	6.9	mg/kg	86	Y
ES2410544	ES2410544036	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2410544	ES2410544036	Trip Spike	ortho-Xylene	2.5	2.9	mg/kg	86	Y
ES2410544	ES2410544036	Trip Spike	Sum of BTEX	19.1	22.1	mg/kg	86	Y
ES2410544	ES2410544036	Trip Spike	Toluene	4.7	5.5	mg/kg	85	Y
ES2410544	ES2410544036	Trip Spike	Total Xylenes	8.5	9.8	mg/kg	86	Y
ES2410587	ES2410587035	Trip Spike	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2410587	ES2410587035	Trip Spike	Ethylbenzene	5.5	5.9	mg/kg	93	Y
ES2410587	ES2410587035	Trip Spike	meta- & para-Xylene	6.1	6.5	mg/kg	93	Y
ES2410587	ES2410587035	Trip Spike	Naphthalene	<1	<1	mg/kg	100	Y
ES2410587	ES2410587035	Trip Spike	ortho-Xylene	2.5	2.7	mg/kg	92	Y
ES2410587	ES2410587035	Trip Spike	Sum of BTEX	19	20.3	mg/kg	93	Y
ES2410587	ES2410587035	Trip Spike	Toluene	4.9	5.2	mg/kg	94	Y
ES2410587	ES2410587035	Trip Spike	Total Xylenes	8.6	9.2	mg/kg	93	Y
ES2341301	ES2341301014	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2341301	ES2341301014	TRIP SPIKE	Ethylbenzene	4.2	4.8	mg/kg	87	Y
ES2341301	ES2341301014	TRIP SPIKE	meta- & para-Xylene	4.2	4.8	mg/kg	87	Y
ES2341301	ES2341301014	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100	Y
ES2341301	ES2341301014	TRIP SPIKE	ortho-Xylene	1.9	2.1	mg/kg	90	Y
ES2341301	ES2341301014	TRIP SPIKE	Sum of BTEX	13.6	15.4	mg/kg	88	Y
ES2341301	ES2341301014	TRIP SPIKE	Toluene	3.3	3.7	mg/kg	89	Y
ES2341301	ES2341301014	TRIP SPIKE	Total Xylenes	6.1	6.9	mg/kg	88	Y
ES2337379	ES2337379015	TRIP SPIKE	Benzene	<0.2	<0.2	mg/kg	100	Y
ES2337379	ES2337379015	TRIP SPIKE	Ethylbenzene	4.2	4.6	mg/kg	91%	Y
ES2337379	ES2337379015	TRIP SPIKE	meta- & para-Xylene	4.4	4.7	mg/kg	94%	Y
ES2337379	ES2337379015	TRIP SPIKE	Naphthalene	<1	<1	mg/kg	100%	Y
ES2337379	ES2337379015	TRIP SPIKE	ortho-Xylene	1.8	1.9	mg/kg	95%	Y
ES2337379	ES2337379015	TRIP SPIKE	Sum of BTEX	6.4	15.6	mg/kg	41%	Y
ES2337379	ES2337379015	TRIP SPIKE	Toluene	15	4.4	mg/kg	341%	Y
ES2337379	ES2337379015	TRIP SPIKE	Total Xylenes	6.2	6.6	mg/kg	94%	Y

Table E6 - Rinsates and Water Trip Blanks

			Metals								Total Recoverable Hydrocarbons							Total Petroleum Hydrocarbons				
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	C6-C10 fraction	C6-C10 fraction (minus BTEX)(F1)	>C10-C16 (minus Naphthalene)(F2)	>C10-C16 fraction	>C16-C34 fraction	>C34-C40 fraction	>C10-C40 fraction (sum)	C6-C9 fraction	C10-C14 fraction	C15-C28 fraction	C29-C36 fraction	C10-C36 fraction (sum)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.001	0.0001	0.001	0.001	0.001	0.0001	0.001	0.005	20	20	100	100	100	100	100	20	50	100	50	50
Lab Report	**Field ID**	**Date**																				
ES2341301	**QC300_20231127**	**27 Nov 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2341301	**QC300_20231128**	**28 Nov 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2341790	**QC300_20231130**	**30 Nov 2023**	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2341790	**QC300_20231201**	**01 Dec 2023**	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2343534	**QC300_20231206**	**06 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2343795	**QC300_20231208**	**07 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2343854	**QC300_20231212**	**12 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	**QC300_20231218**	**17 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2344549	**QC300_20231215**	**15 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2344549	**QC300_20231217**	**17 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2344603	**QC300_20231219**	**19 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231220**	**20 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2344603	**QC300_20231221**	**21 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	0.020	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2401099-AA	**QC300_20231105**	**05 Nov 2023**	<0.001	<0.0001	0.002	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2401099-AA	**QC300_20231205**	**05 Dec 2023**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2406391	**QC300_20240226**	**26 Feb 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2408075	**QC300_20240311**	**11 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409354	**QC300_20240308**	**08 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409727	**QC300_20240319**	**19 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409765	**QC300_20240322**	**22 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409806	**QC300_20240324**	**24 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409869	**QC300_20240321**	**21 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2409869	**QC300_20240322**	**22 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2410231	**QC300_20240327**	**27 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2410544	**QC300_20240325**	**25 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2410544	**QC300_20240327**	**27 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2410587	**QC300_20240326**	**26 Mar 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2410959	**QC300_20240403**	**03 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411530	**QC300_20240407**	**07 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411585	**QC300_20240410**	**10 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411585	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2411748	**QC300_20240408**	**08 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411983	**QC300_20240411**	**11 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411983	**QC300_20240411(N)**	**11 Apr 2024**	-	-	-	-	-	-	-	-	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2411983	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2412153	**QC300_20240411**	**11 Apr 2024**	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.005	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50
ES2412153	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	<20	<20	-	-	-	-	-	<20	-	-	-	-
ES2413389	**QC300_20240423**	**23 Apr 2024**	-	-	-	-	-	-	-	-	<20	<20	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50

Table E6 - Rinsates and Water Trip Blanks

			Monocyclic Aromatic Hydrocarbons																
			Naphthalene (used F2 calc)	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	Styrene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	tert-butylbenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Total BTEX
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			5	1	2	2	2	2	2	5	5	5	5	5	5	5	5	5	1
Lab Report	**Field ID**	**Date**																	
ES2341301	**QC300_20231127**	**27 Nov 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2341301	**QC300_20231128**	**28 Nov 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2341790	**QC300_20231130**	**30 Nov 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2341790	**QC300_20231201**	**01 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2343534	**QC300_20231206**	**06 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2343795	**QC300_20231208**	**07 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2343854	**QC300_20231212**	**12 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	**QC300_20231218**	**17 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2344549	**QC300_20231215**	**15 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2344549	**QC300_20231217**	**17 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2344603	**QC300_20231219**	**19 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231220**	**20 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2344603	**QC300_20231221**	**21 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2401099-AA	**QC300_20231105**	**05 Nov 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2401099-AA	**QC300_20231205**	**05 Dec 2023**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2406391	**QC300_20240226**	**26 Feb 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2408075	**QC300_20240311**	**11 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409354	**QC300_20240308**	**08 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409727	**QC300_20240319**	**19 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409765	**QC300_20240322**	**22 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409806	**QC300_20240324**	**24 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409869	**QC300_20240321**	**21 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2409869	**QC300_20240322**	**22 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2410231	**QC300_20240327**	**27 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2410544	**QC300_20240325**	**25 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2410544	**QC300_20240327**	**27 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2410587	**QC300_20240326**	**26 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2410959	**QC300_20240403**	**03 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2411530	**QC300_20240407**	**07 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2411585	**QC300_20240410**	**10 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2411585	**TRIP BLANK**	**25 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2411748	**QC300_20240408**	**08 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2411983	**QC300_20240411**	**11 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1
ES2411983	**QC300_20240411(N)**	**11 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1
ES2411983	**TRIP BLANK**	**25 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2412153	**QC300_20240411**	**11 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2412153	**TRIP BLANK**	**25 Mar 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1
ES2413389	**QC300_20240423**	**23 Apr 2024**	<5	<1	<2	<2	<2	<2	<2	-	-	-	-	-	-	-	-	-	<1

Table E6 - Rinsates and Water Trip Blanks

			Polynuclear Aromatic Hydrocarbons																
			Benzo(a)pyrene TEQ calc (Zero)	Naphthalene	Acenaphthylene	Acenaphthene	Anthracene	Fluorene	Phenanthrene	Fluoranthene	Benz(a)anthracene	Benzo(k)fluoranthene	Benzo(b&j)fluoranthene	Benzo(a)pyrene	Chrysene	Pyrene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Sum of PAHs
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.5	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1	1	0.5
Lab Report	**Field ID**	**Date**																		
ES2341301	QC300_20231127	27 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	QC300_20231128	28 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231130	30 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231201	01 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2343534	QC300_20231206	06 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2343795	QC300_20231208	07 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2343854	QC300_20231212	12 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	QC300_20231218	17 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2344549	QC300_20231215	15 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2344549	QC300_20231217	17 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2344603	QC300_20231219	19 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231220	20 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2344603	QC300_20231221	21 Dec 2023	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2401099-AA	QC300_20231105	05 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231205	05 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	QC300_20240226	26 Feb 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2408075	QC300_20240311	11 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409354	QC300_20240308	08 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409727	QC300_20240319	19 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409765	QC300_20240322	22 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409806	QC300_20240324	24 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409869	QC300_20240321	21 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2409869	QC300_20240322	22 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2410231	QC300_20240327	27 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2410544	QC300_20240325	25 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2410544	QC300_20240327	27 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2410587	QC300_20240326	26 Mar 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2410959	QC300_20240403	03 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411530	QC300_20240407	07 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411585	QC300_20240410	10 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411585	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	QC300_20240408	08 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411983	QC300_20240411	11 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411983	QC300_20240411(N)	11 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2411983	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	QC300_20240411	11 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5
ES2412153	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	QC300_20240423	23 Apr 2024	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5

Table E6 - Rinsates and Water Trip Blanks

			Per- and Poly-fluoroalkyl Substances													
			Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum (PFHxS + PFOS)	Sum of WA DWER PFAS (n=10)*
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.02	0.01	0.01	0.1	0.02	0.02	0.02	0.01	0.05	0.05	0.05	0.05	0.01	0.01
Lab Report	**Field ID**	**Date**														
ES2341301	QC300_20231127	27 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	QC300_20231128	28 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231130	30 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231201	01 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343534	QC300_20231206	06 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	QC300_20231208	07 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343854	QC300_20231212	12 Dec 2023	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2344222	QC300_20231218	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231215	15 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231217	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231219	19 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231220	20 Dec 2023	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2344603	QC300_20231221	21 Dec 2023	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2401099-AA	QC300_20231105	05 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231205	05 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	QC300_20240226	26 Feb 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2408075	QC300_20240311	11 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	QC300_20240308	08 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	QC300_20240319	19 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409765	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	QC300_20240324	24 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240321	21 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240325	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	QC300_20240326	26 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	QC300_20240403	03 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	QC300_20240407	07 Apr 2024	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2411585	QC300_20240410	10 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	QC300_20240408	08 Apr 2024	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2411983	QC300_20240411	11 Apr 2024	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2411983	QC300_20240411(N)	11 Apr 2024	<0.02	<0.01	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
ES2411983	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	QC300_20240423	23 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E6 - Rinsates and Water Trip Blanks

			Phenolic Compounds										
			3/4-Methylphenol (m/p-cresol)	Phenol	2-Chlorophenol	2-Methylphenol (o-Cresol)	2-Nitrophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	Pentachlorophenol
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			2	1	1	1	1	1	1	1	1	1	1	2
Lab Report	**Field ID**	**Date**												
ES2341301	**QC300_20231127**	**27 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	**QC300_20231128**	**28 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231130**	**30 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231201**	**01 Dec 2023**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2343534	**QC300_20231206**	**06 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	**QC300_20231208**	**07 Dec 2023**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2343854	**QC300_20231212**	**12 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	**QC300_20231218**	**17 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	**QC300_20231215**	**15 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	**QC300_20231217**	**17 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231219**	**19 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231220**	**20 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231221**	**21 Dec 2023**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2401099-AA	**QC300_20231105**	**05 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	**QC300_20231205**	**05 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	**QC300_20240226**	**26 Feb 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2408075	**QC300_20240311**	**11 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	**QC300_20240308**	**08 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	**QC300_20240319**	**19 Mar 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2409765	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	**QC300_20240324**	**24 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240321**	**21 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240325**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	**QC300_20240326**	**26 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	**QC300_20240403**	**03 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411530	**QC300_20240407**	**07 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411585	**QC300_20240410**	**10 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411585	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	**QC300_20240408**	**08 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411983	**QC300_20240411**	**11 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411983	**QC300_20240411(N)**	**11 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2411983	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	**QC300_20240411**	**11 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
ES2412153	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	**QC300_20240423**	**23 Apr 2024**	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0

Table E6 - Rinsates and Water Trip Blanks

			Organophosphorus Pesticides (OP)																	
			Azinphos Methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenamiphos	Fenthion	Malathion	Monocrotophos	Parathion	Parathion-methyl	Pirimphos-ethyl	Prothiofos
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	2	2	0.5	0.5
Lab Report	**Field ID**	**Date**																			
ES2341301	QC300_20231127	27 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	QC300_20231128	28 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231130	30 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231201	01 Dec 2023	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5
ES2343534	QC300_20231206	06 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	QC300_20231208	07 Dec 2023	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5
ES2343854	QC300_20231212	12 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	QC300_20231218	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231215	15 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231217	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231219	19 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231220	20 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231221	21 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231105	05 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231205	05 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	QC300_20240226	26 Feb 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5
ES2408075	QC300_20240311	11 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	QC300_20240308	08 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	QC300_20240319	19 Mar 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<2.0	<0.5	<0.5
ES2409765	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	QC300_20240324	24 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240321	21 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240325	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	QC300_20240326	26 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	QC300_20240403	03 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	QC300_20240407	07 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	QC300_20240410	10 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	QC300_20240408	08 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	QC300_20240411(N)	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	QC300_20240423	23 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E6 - Rinsates and Water Trip Blanks

			Organochlorine Pesticides (OC)																	
			Aldrin	Dieldrin	Aldrin + Dieldrin	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	cis-Chlordane	trans-Chlordane	Chlordane	DDD	DDE	DDT	DDT+DDE+DDD	Endosulfan 1	Endosulfan 2	Endosulfan sulfate	Endrin	Endrin aldehyde
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5	0.5	0.5	0.5	0.5	0.5
Lab Report	**Field ID**	**Date**																			
ES2341301	QC300_20231127	27 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	QC300_20231128	28 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231130	30 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231201	01 Dec 2023	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2343534	QC300_20231206	06 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	QC300_20231208	07 Dec 2023	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2343854	QC300_20231212	12 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	QC300_20231218	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231215	15 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231217	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231219	19 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231220	20 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231221	21 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231105	05 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231205	05 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	QC300_20240226	26 Feb 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2408075	QC300_20240311	11 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	QC300_20240308	08 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	QC300_20240319	19 Mar 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2409765	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	QC300_20240324	24 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240321	21 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240325	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	QC300_20240326	26 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	QC300_20240403	03 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	QC300_20240407	07 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	QC300_20240410	10 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	QC300_20240408	08 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	QC300_20240411(N)	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411983	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	QC300_20240423	23 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E6 - Rinsates and Water Trip Blanks

								Fumigants					Halogenated Aromatic Compounds								
			Endrin ketone	Heptachlor	Heptachlor epoxide	Hexachlorobenzene (HCB)	Methoxychlor	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	2,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Bromobenzene	Chlorobenzene	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			0.5	0.5	0.5	0.5	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Lab Report	**Field ID**	**Date**																			
ES2341301	**QC300_20231127**	**27 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	**QC300_20231128**	**28 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231130**	**30 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231201**	**01 Dec 2023**	<0.5	<0.5	<0.5	<0.5	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343534	**QC300_20231206**	**06 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	**QC300_20231208**	**07 Dec 2023**	<0.5	<0.5	<0.5	<0.5	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343854	**QC300_20231212**	**12 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	**QC300_20231218**	**17 Dec 2023**	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2344549	**QC300_20231215**	**15 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	**QC300_20231217**	**17 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231219**	**19 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231220**	**20 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231221**	**21 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	**QC300_20231105**	**05 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	**QC300_20231205**	**05 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	**QC300_20240226**	**26 Feb 2024**	<0.5	<0.5	<0.5	<0.5	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2408075	**QC300_20240311**	**11 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	**QC300_20240308**	**08 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	**QC300_20240319**	**19 Mar 2024**	<0.5	<0.5	<0.5	<0.5	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409765	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	**QC300_20240324**	**24 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240321**	**21 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240325**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	**QC300_20240326**	**26 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	**QC300_20240403**	**03 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	**QC300_20240407**	**07 Apr 2024**	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411585	**QC300_20240410**	**10 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	**QC300_20240408**	**08 Apr 2024**	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**QC300_20240411**	**11 Apr 2024**	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**QC300_20240411(N)**	**11 Apr 2024**	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	**QC300_20240411**	**11 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	**QC300_20240423**	**23 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E6 - Rinsates and Water Trip Blanks

			Halogenated Aliphatic Compounds																	
			Dichlorodifluoromethane (Freon 12)	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane (Freon 11)	1,1-Dichloroethene	Iodomethane	1,1-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon Tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-Trichloroethane	1,3-Dichloropropane
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			50	50	50	50	50	50	5	5	5	5	5	5	5	5	5	5	5	5	5
Lab Report	**Field ID**	**Date**																			
ES2341301	**QC300_20231127**	**27 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	**QC300_20231128**	**28 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231130**	**30 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	**QC300_20231201**	**01 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343534	**QC300_20231206**	**06 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	**QC300_20231208**	**07 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343854	**QC300_20231212**	**12 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	**QC300_20231218**	**17 Dec 2023**	<50	<50	<50	<50	<50	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2344549	**QC300_20231215**	**15 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	**QC300_20231217**	**17 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231219**	**19 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231220**	**20 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	**QC300_20231221**	**21 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	**QC300_20231105**	**05 Nov 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	**QC300_20231205**	**05 Dec 2023**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	**QC300_20240226**	**26 Feb 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2408075	**QC300_20240311**	**11 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	**QC300_20240308**	**08 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	**QC300_20240319**	**19 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409765	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	**QC300_20240324**	**24 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240321**	**21 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	**QC300_20240322**	**22 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240325**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	**QC300_20240327**	**27 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	**QC300_20240326**	**26 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	**QC300_20240403**	**03 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	**QC300_20240407**	**07 Apr 2024**	<50	<50	<50	<50	<50	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411585	**QC300_20240410**	**10 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	**QC300_20240408**	**08 Apr 2024**	<50	<50	<50	<50	<50	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**QC300_20240411**	**11 Apr 2024**	<50	<50	<50	<50	<50	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**QC300_20240411(N)**	**11 Apr 2024**	<50	<50	<50	<50	<50	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2411983	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	**QC300_20240411**	**11 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	**TRIP BLANK**	**25 Mar 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	**QC300_20240423**	**23 Apr 2024**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table E6 - Rinsates and Water Trip Blanks

											Trihalomethanes				PCBs	Oxygenated Compounds				
			Tetrachloroethene	1,1,1,2-Tetrachloroethane	trans-1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Pentachloroethane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene	Bromodichloromethane	Bromoform	Chloroform	Dibromochloromethane	Polychlorinated Biphenyls	Vinyl acetate	2-Butanone (MEK)	2-hexanone (MBK)	4-Methyl-2-pentanone (MIBK)	Carbon disulfide
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			5	5	5	5	5	5	5	5	5	5	5	5	5	1	50	50	50	50	5
Lab Report	**Field ID**	**Date**																			
ES2341301	QC300_20231127	27 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341301	QC300_20231128	28 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231130	30 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2341790	QC300_20231201	01 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343534	QC300_20231206	06 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2343795	QC300_20231208	07 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
ES2343854	QC300_20231212	12 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344222	QC300_20231218	17 Dec 2023	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	<5	-	-	-	-	-	-
ES2344549	QC300_20231215	15 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344549	QC300_20231217	17 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231219	19 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231220	20 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2344603	QC300_20231221	21 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231105	05 Nov 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2401099-AA	QC300_20231205	05 Dec 2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2406391	QC300_20240226	26 Feb 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
ES2408075	QC300_20240311	11 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409354	QC300_20240308	08 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409727	QC300_20240319	19 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-	-
ES2409765	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409806	QC300_20240324	24 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240321	21 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2409869	QC300_20240322	22 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410231	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240325	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410544	QC300_20240327	27 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410587	QC300_20240326	26 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2410959	QC300_20240403	03 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411530	QC300_20240407	07 Apr 2024	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-
ES2411585	QC300_20240410	10 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411585	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2411748	QC300_20240408	08 Apr 2024	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-
ES2411983	QC300_20240411	11 Apr 2024	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<50	<50	<50	<50	<5
ES2411983	QC300_20240411(N)	11 Apr 2024	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<50	<50	<50	<50	<5
ES2411983	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	QC300_20240411	11 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2412153	TRIP BLANK	25 Mar 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2413389	QC300_20240423	23 Apr 2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix F

Borelogs

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Soil and Rock Logging Explanatory Notes and Abbreviations

AS1726-2017

Soil and rock descriptions on the engineering log sheets are in accordance with AS1726 – 2017-Geotechnical Site Investigations. For full details of the logging standards refer to Section 6 of AS1726-2017. A summary of the sequence of descriptive terms used to describe soil and rock on the engineering log sheets is outlined below.

AECOM logs prepared prior to July 2017 were prepared generally in accordance with AS1726 - 1993. The soil classification system adopted in AS1726-2017 differs from the Unified Soil Classification System (USCS) and the logging standards recommended in AS1726-1993 significantly in the criteria used to distinguish between coarse and fine grained soils (see Soil Description below).

Soil Description

SOIL NAME: plasticity or particle characteristics of major component; colour; structure; secondary and other minor components. The AS1726 Group Symbol; consistency/density; and moisture condition are listed as abbreviations in separate columns. Geological origin and additional observations as required such as soil origin i.e. FILL, ALLUVIUM and other significant details are recorded in a separate column.

The major soil component (capitalised) is assessed after removal of cobble size or larger components (>63mm), soils containing 35% or more passing the 75 micron sieve are classified as fine grained soils. Fine grained soils are classified on the behaviour of the fine grained component, not percentage of silt and clay.

This is a significant departure from the previous AS1726-1993 where soils had to contain 50% or more passing the 75 micron sieve to be classified as a fine grained soil. This results in materials containing 50% or more coarse grained material previously described as coarse grained (e.g. “sandy CLAY/clayey SAND” or “silty SAND”) now being described as fine grained soils if they contain at least 35% fines (e.g. “sandy CLAY” or “sandy SILT”). Additionally, many fine grained soils previously described as containing both silt and clay (e.g. “silty CLAY”, “CLAY: with silt”) are now described as either CLAY or SILT with no mention of the other fine component. The exception is where behaviour is borderline, in which case “clayey SILT” is used.

Rock Description

ROCK NAME: grain size and type; colour; fabric and texture; structure; minor components; and bedding dip. The geological formation; rock strength; weathering/alteration; mass defect spacing; and defect descriptions are listed under separate columns.

Extremely weathered material is prefixed as such followed by a description of the soil properties. Similarly in situ weathering or infilling of defects greater than 100 mm thick with soil or extremely weathered material is described using relevant soil properties in the description column of the engineering log sheet.

Field Samples and In Situ Tests

Field samples and tests are recorded in the relevant column using abbreviations described under General Symbols and Abbreviations.

Field tests have been used to assess soil consistency/density and rock strength, and unless specifically stated otherwise, have been transferred directly to the engineering log sheets and not modified to coincide with laboratory results. Field descriptions may be used as an independent estimate of material properties which can be correlated with other data.

Organic and Artificial Material

Soil containing greater than 25% organic material is described as PEAT. Soils containing between 2% and 25% organic material are prefixed by “Organic” (e.g. Organic CLAY). TOPSOIL is a specific soil origin that may also contain both living and dead organic materials. Organic matter is described using terms such as fibrous peat, charcoal, wood fragments, roots (>2mm diameter) or root fibres (<2mm diameter)

Any material containing evidence that it has been placed by man-made mechanisms, including compacted embankment materials and materials containing evidence of artificial materials is prefixed as FILL. Waste fill is described using terms such as domestic refuse, oil, bitumen, brickbats, concrete rubble, fibrous plaster, wood pieces, wood shavings, sawdust, iron filings, drums, steel bars, steel scrap, bottles, broken glass, or leather.

Organic and artificial material cannot be adequately described using soil classification terms. They are mentioned, at the end of the description using qualitative terms such as “rare”, “occasional” or “frequent”, e.g. “SAND with rare gravel size brick fragments”. These qualitative terms are relative, for which no definition of percentage is given.

Structure

The structure of soil (or rock) is usually applicable to cohesive soils or rock. Typical terms that are used on the engineering log sheets include; *intact* (no joints), *fissured* (closed joints), *voided*, *vesicular*, *slickensided* (sheared), *interbedded*, *laminated* and *cemented*.

Plasticity

Descriptive Term	Range of Liquid Limit (%)
Low plasticity	≤ 35
Medium plasticity	> 35 ≤ 50
High plasticity	> 50

Colour

Colour has been assessed in the “moist” condition using basic colours and the modifiers pale, dark and mottled. Borderline colours are described as a combination of the two colours (e.g. red-brown). When describing the colour of defect infill, the following abbreviations are used in the defect description column.

Colour abbreviations

Term	Abbreviation
Brown	br
Grey	gy
Black	bk
White	wh
Blue	bl
Green	gr
Yellow	yl
Orange	or
Red	rd
Pale	pl
Dark	dk
Mottled	mtld

Moisture Condition

Term	Symbol	Description	
		Cohesive	Granular
Dry	D	Cohesive; hard and friable or powdery, very dry of plastic limit	Cohesion-less and free running
Moist	M w<PL w~PL w>PL	Soil feels cool, darkened in colour, can be moulded, typically with moisture content (w) between plastic limit (PL) and liquid limit (LL) as indicated	Soil feels cool, darkened in colour, tends to cohere
Wet	W w~LL w>LL	Soil feels cool, dark, usually weakened, free water, typically with moisture content (w) approximately at or wet of liquid limit (LL) as indicated	Soil feels cool, darkened in colour, tends to cohere, free water

Geological Origin

Term		Description
Weathered in Place Material	Extremely weathered material	Structure and fabric of parent rock visible (NOTE – described with soil terminology)
	Residual Soil	Structure and fabric of parent rock not visible
Transported Soils	Aeolian soil	Deposited by wind
	Alluvial soil	Deposited by streams and rivers
	Colluvial soil	Deposited on slopes (transported downslope)
	Lacustrine soil	Deposited by lakes
	Marine soil	Deposited in oceans, bays, beaches and estuaries
TOPSOIL	Mantle of surface and/or near surface soil often but not always defined by high levels of organic material (prefix to soil description)	
FILL	Soil, rock or refuse placed by humans in either controlled or uncontrolled conditions (prefix to soil description)	

Where there is doubt to origin ‘possibly’ or ‘probably’ are used.

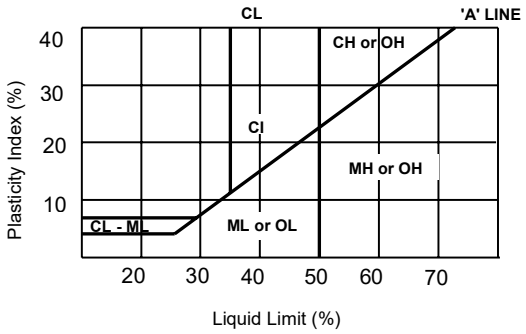
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Soil Classification

Field Identification Procedures (Excluding particles larger than 63mm and basing fractions on estimated mass)				Log Graphic	Group Symbol	Typical Names	Secondary and Minor Components	Laboratory Classification Criteria	
Coarse Grained Soils More than 65% of material less than 63 mm is larger than 0.075 mm	GRAVEL More than 50% of coarse fraction is larger than 2.36mm	clean GRAVEL (<5% fines)	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength		GW	Well graded GRAVEL or sandy GRAVEL	Fine Grains >12% >5% ≤12% ≤5% Coarse Grains >30% >15% ≤30% ≤15% Secondary/Minor Descriptor Prefix "sandy", "silty" etc. Add "with sand/silt" etc. Add "trace sand/silt" etc.	Laboratory grain size curve used in identifying the fractions as given under field identification	$c_u = \frac{D_{60}}{D_{10}}$ $C_u \geq 4$ $c_c = \frac{(D_{30})^2}{D_{10} x D_{60}}$ Cc=1 – 3
			Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength		GP	Poorly graded GRAVEL or sandy GRAVEL			<5% fines, not meeting all gradation requirements for GW.(i.e. Cu < 4 or Cc ≠ 1 – 3)
		GRAVEL (≥12% fines)	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength		GM	silty GRAVEL or silty sandy GRAVEL			≥12% Fines with Atterberg limits below 'A' line
			'Dirty' materials with excess of plastic fines, medium to high dry strength		GC	clayey GRAVEL or clayey sandy GRAVEL			≥12% Fines with Atterberg limits above 'A' line
	SAND More than 50% of coarse fraction is smaller than 2.36mm	Clean SAND (<5% fines)	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength		SW	Well graded SAND or gravelly SAND			$c_u = \frac{D_{60}}{D_{10}}$ $C_u \geq 6$ $c_c = \frac{(D_{30})^2}{D_{10} x D_{60}}$ Cc=1–3
			Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength		SP	Poorly graded SAND or gravelly SAND			<5% fines, not meeting all gradation requirements for SW. (i.e. Cu < 6 or Cc ≠ 1 – 3)
		SAND (≥12% fines)	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength		SM	silty SAND			≥12% Fines with Atterberg limits below 'A' line.
			'Dirty' materials with excess of plastic fines, medium to high dry strength		SC	clayey SAND			≥12% Fines with Atterberg limits above 'A' line.

Fine Grained Soils 35% or more of material less than 63 mm is smaller than 0.075 mm	IDENTIFICATION PROCEDURES ON FRACTIONS < 0.2 mm								
		LIQUID LIMIT	DRY STRENGTH	DILATANCY	TOUGHNESS				
	SILT	>50%	Low to medium	None to slow	Low to medium		MH	Inorganic SILT, gravelly SILT, sandy SILT	Secondary fine grained soil not described except for borderline SILT/CLAY mixtures described as "clayey SILT" Coarse grained Secondary/Minor descriptors: prefix "gravelly" "or "sandy" as appropriate >30% ≤30% add "with sand/gravel" as appropriate >15% ≤15% add "trace sand/gravel" as appropriate
		≤50%	None to low	Slow to rapid	Low		ML	Inorganic SILT and very fine sand, rock flour, silty or clayey fine sand or silt.	
			Low to medium	Slow	Low		OL	Organic SILT (2%<organics<25%)	
	Borderline SILT/ CLAY	≤35%	Low to Medium	None to slow	Low to Medium		ML-CL	clayey SILT	
	CLAY	>50%	High to very high	None	High		CH	Inorganic CLAY, sandy CLAY, gravelly CLAY	
		>35 and ≤50%	Medium to high	None to slow	Medium		CI		
		≤35%					CL		
		>35%	Medium to high	None to very slow	Low to medium		OH	Organic CLAY (2%<organics<25%)	
	PEAT (>25% organic by dry weight)		Readily identified by colour, odour, spongy feel and frequently by fibrous texture				Pt	PEAT, sandy PEAT	

Laboratory classification from Modified Cassagrande Chart



Modified Cassagrande Chart for classification of fine-grained soils

Boundary classifications – Soils possessing characteristics of two groups are designated by combinations of group symbols. For example: GP-GC for gravel with between 5 and 12% clay fines; CI-CH for clay soils where field estimates of plasticity are borderline between medium and high

Other log graphics: FILL, TOPSOIL, ASPHALT, CONCRETE, sandy GRAVEL, gravelly SAND, gravelly SILT, sandy SILT, gravelly CLAY, sandy CLAY

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Sedimentary and Metamorphic Rock Types, Grain Size, Defect Spacing and Planar Structure

Grain Size/ Spacing Thickness	Soil Grain Size Term	Rock Type							Defect Spacing Term	Bedding Thickness Term
		Sedimentary				Metamorphic		Igneous/ Metamor-phic grain size		
		Deposited rock type	≥90% carbonate (prefix IMPURE 50%-90%)		Volcanic ejecta	Foliated	Non-Foliated			
			Low porosity	Porous						
> 2m	large BOULDERS	CONGLOMERATE (larger rounded grains in a finer matrix) *or* BRECCIA (angular or irregular rock fragments in a finer matrix)	LIMESTONE (predominantly $CaCO^3$) or DOLOMITE (predominantly $CaMgCO^3$)	CALCIRUDITE	AGGLOMERATE (rounded grains in a finer matrix) *or* VOLCANIC BRECCIA (angular or irregular fragments in a finer matrix)	GNEISS	MARBLE (crystalline $CaCO^3$)/ QUARTZITE (fused quartz)/ SERPENTINITE (mafic igneous)/ HORNFELS (fine thermal)	COARSE	VERY WIDE (VW)	VERY THICKLY BEDDED
0.6 - 2m	medium BOULDERS								WIDE (W)	THICKLY BEDDED
0.2 - 0.6 m	small BOULDERS								MEDIUM (M)	MEDIUM BEDDED
60 - 200 mm	COBBLES								CLOSE (C)	THINLY BEDDED
20 - 60 mm	coarse GRAVEL								VERY CLOSE (VC)	LAMINATED
6 - 20 mm	medium GRAVEL								EXTREMELY CLOSE (EC)	THINLY LAMINATED
2 - 6 mm	fine GRAVEL								-	VERY THINLY LAMINATED
0.6 - 2.0 mm	coarse SAND	SANDSTONE/ GREYWACKE (rock fragments)/ ARKOSE (mainly feldspar)/ QUARTZOZE SANDSTONE (quartz and siliceous cement)		CALCARENITE	TUFF	SCHIST		MEDIUM		-
0.2 - 0.6 mm	medium SAND									
0.06 - 0.2 mm	Fine SAND									
2 - 60 µm	SILT	MUDSTONE/ SHALE (fissile)/ LAMINITE (bedded) / SILTSTONE		CALCISILTITE	Fine grained TUFF	PHYLLITE (undulose)/ SLATE (planar)		FINE		
< 2 µm	CLAY			CALCILUTITE						

Note: EVAPORITE is sedimentary rock which consist mainly of salts e.g.: Halite (NaCl), Anhydrite and Gypsum ($CaSO_4$); COAL is mostly organic sedimentary rock that consists of indurated accumulations of plant debris

Classification of Igneous Rocks (Massive Crystalline)

Grain Size (mm)	Much quartz, pale (felsic)	⟷	Little quartz, dark (mafic)
COARSE (>2)	GRANITE	DIORITE	GABBRO
MEDIUM (0.06-2)	MICROGRANITE	MICRODIORITE	DOLERITE
FINE (<0.06)	RHYOLITE	ANDESITE	BASALT

Note: PEGMATITE consist of large crystals often forming a dyke or vein
VOLCANIC GLASS and OBSIDIAN are rocks that have cooled quickly and have a glassy texture
APLITE may occur as light coloured veins of quartz and feldspar in other igneous rocks
PORPHYRY is an igneous rock consisting of large crystals in a much finer matrix

Duricrust (soils cemented to rock)

FERRICRETE (iron oxide cemented)
SILCRETE (silica cemented)
GYPCRETE (salt cemented)
CALCRETE ($CaCO_3$ cemented – dominated by replacement features)

No Core

NO CORE (description, defect and strength logs show beak in logging)

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Grain Size

Soil Type	Fine Grained Soil		Coarse Grained Soil						Oversize
	Clay	Silt	Sand			Gravel			Cobbles
			Fine	Medium	Coarse	Fine	Medium	Coarse	
Grain Size	< 2 µm	2-75 µm	0.075-0.21 mm	0.21-0.6 mm	0.6-2.36 mm	2.36-6.7 mm	6.7-19 mm	19-63 mm	63-200 mm
Field Guide	Shiny, Not visible under 10x	Dull, Visible under 10x	Visible by eye	Visible at < 1 m	Visible at < 3 m	Visible at < 5 m	Road gravel	Rail ballast	Beaching

Boulders (>200mm) and Cobbles (63-200mm) are considered oversize materials and are separated from the sample prior to describing the soil. Where cobbles or boulders are present the soil description is preceded by 'MIXTURE OR SOIL AND COBBLES/BOULDERS' with the word order indicating the dominant proportion first followed by the soil description and the estimate proportion of oversize materials indicating whether they are supported by the soil matrix.

Grain Shape

	Angular	Sub-angular	Sub-rounded	Rounded
Equi-dimensional particles				

Essentially two-dimensional particles are described as "flaky" or "platy" while essentially one dimensional particles are described as "elongated". Particle composition should be described where significant (e.g. "quartz sand")

Relative Density (non-cohesive soils)

Term	Very Loose	Loose	Medium Dense	Dense	Very Dense
Symbol	VL	L	MD	D	VD
Density Index (%)	≤ 15	> 15 ≤ 35	> 35 ≤ 65	> 65 ≤ 85	> 85
Uncorrected SPT (N) Blow count #	0 - 4	4 - 10	10 - 30	30 - 50	> 50
Field Guide	Ravels	Shovels easily	Shovelling very difficult	Pick required	Pick difficult

NOTE: Density Index as a measure of relative density only applies to dry cohesionless soils. Correlations between relative density and SPT vary considerably depending on grain size and angularity, overburden pressure, moisture content, fines content, cementation and SPT efficiency. The above SPT correlation is a rough field guide for clean, dry, fine to medium sands at a depth of 5 to 15m after Gibbs & Holtz (1957). Where relative density is important to design, more detailed correlations taking into account the factors discussed above should be considered.

Consistency (cohesive soils)

Based on undrained strength (S_u) estimated in field from pocket penetrometer or shear vane

Term	Very Soft	Soft	Firm	Stiff	Very Stiff	Hard
Symbol	VS	S	F	St	VSt	H
Undrained Shear Strength (kPa)	≤12	>12 ≤ 25	>25 ≤ 50	>50 ≤100	>100 ≤ 200	>200
Approx. SPT (N) Blow count #	0 - 2	2 - 4	4 – 8	8 - 15	15 - 30	> 30
Field Guide	Exudes between the fingers when squeezed	Can be moulded by light finger pressure	Can be moulded by strong finger pressure	Cannot be moulded by fingers. Can be indented by thumb	Can be indented by thumb nail	Can be indented with difficulty with thumb nail

NOTE: SPT is not a direct measure of consistency and ranges are only a rough field guide. Plasticity, fissuring, moisture, and sand and gravel content can all affect SPT values dramatically.

Rock Strength

Term	Soil	Very Low	Low	Medium	High	Very High	Extremely High
SYMBOL	soil	VL	L	M	H	VH	EH
UCS (MPa)	≤ 0.6	> 0.6 ≤ 2	>2 ≤ 6	> 6 ≤ 20	> 20 ≤ 60	> 60 ≤ 200	> 200
$I_{s\,(50)}$ (MPa) see note 1&3	-	> 0.03 ≤ 0.1	> 0.1 ≤ 0.3	> 0.3 ≤ 1	> 1 ≤ 3	> 3 ≤ 10	> 10
FIELD GUIDE	Soil strength – logged as soil using consistency	Material crumbles under firm blow with sharp end of pick. Can be peeled with a knife. Too hard to cut a triaxial sample by hand. Pieces up to 3 cm thick can be broken by finger pressure.	Easily scored with a knife. Indentations of 1mm - 3mm in the specimen with firm blows of the pick point. Has dull sound under hammer. A piece of core 150 mm long 50 mm diameter may be broken by hand	Readily scored with a knife. A piece of core 150 mm long 50 mm diameter can be broken by hand with difficulty	A piece of core 150 mm long 50 mm diameter cannot be broken by hand but can be broken with by a pick with a single firm blow. Rock rings under hammer	Hand specimen breaks with a pick after more than one blow. Rock rings under hammer	Specimen requires many blows with a geological pick to break through intact material. Rock rings under hammer

Note:
1. The strength of rock material should be based on UCS of materials close to in situ moisture content. $I_{s(50)}$ should only be used where not practical to undertake UCS tests
2. Anisotropy of rock material samples may affect the field assessment of strength
3. The unconfined compressive typically ranges from 10 to 20 times the $I_{s(50)}$ but the multiplier may vary widely for different rock types

Degree of Weathering / Alteration

Weathering and alteration relate to the rock fabric. Both involve physical and chemical changes to the rock due to changes in pressure, temperature, moisture and chemical environment. Weathering is in response to changes from exposure at the earth's surface while alteration is caused by hot liquids or gasses at depth. The distinction between weathering and alteration is important because they are likely to have different distribution patterns.

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Degree of Weathering / Alteration		Weathering Symbol/ Alteration Symbol		Weathering/ Alteration Description
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible but the soil has not been significantly transported.
Extremely Weathered / Extremely Altered		XW / XA		Material is weathered/ altered to such an extent that it has soil properties. Mass structure and material texture of original rock are still visible. Logged as "Extremely weathered/ altered material" and described as a soil.
Highly Weathered / Highly Altered	Distinctly Weathered/ Distinctly Altered	HW / HA	DW/ DA	The whole of the rock material is discoloured usually by staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is changed by weathering/alteration. Some primary minerals weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering product/precipitation of secondary minerals in pores.
Moderately Weathered / Moderately Altered		MW / MA		The whole of the rock material is discoloured usually by staining or bleaching to the extent that the colour of the original rock is not recognisable but shows little or no change in strength from fresh rock.
Slightly Weathered / Slightly Altered		SW / SA		Rock is partially discoloured (with staining or bleaching along joints in the case of weathering) but shows little or no change in strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE: 1. The term "Extremely Weathered/Altered rock" as a description is misleading. Described as Extremely weathered/altered material" followed by material description as a soil.
2. DW/ DA = Distinctly Weathered/Altered is used where it is not practical to distinguish between HW/HA and MW/MA on basis of strength change

In some instances it may be appropriate to describe weathering as part of a rock mass classification system. Where this is used the rock mass classification including the specifics of the weathering related to each rock class is described in the body of the report.

Common Defects in Rock Masses

Defects are described in the description column in the following order, defined by abbreviations:

Type; dip/direction; planarity; roughness; infill/coating; colour. To indicate the defect has been healed, healed is printed at before the defect type.

E.g. P,30/145°,PL,ro,1mm,CH,gy indicates a parting with 30° dip, 145° dip direction, planar, rough surfaces, 1mm thick, filled with grey high plasticity clay.

Defects with a perpendicular thickness up to 10 mm thick are described as partings or joints. Defects 10mm to 100mm thick perpendicular to the defect are described as seams or zones. Defects greater than 100mm thick or intersecting the full width of the core for more than 100mm are described as new material strata on the log.

Defects can be either described individually or grouped into generalised defect sets with similar properties. Individual defects are marked with a leader on the left side of the defect portion of the log, while generalised defects are written on the right side of the defect description area of the log. The extent to which defects are described individually or generalised depends on the nature of the core being logged.

Defect Type

Log Symbol		Appearance	Term		Definition
P			**Parting**		A surface or crack, parallel or sub-parallel to layering or planar anisotropy (bedding or cleavage), across which the rock has little or no tensile strength. May be open or closed
J			**Joint**		A surface or crack, with no apparent shear displacement across which the rock usually has little tensile strength, but which is not parallel or sub-parallel to bedding/cleavage.
S			**Sheared Surface#**		A near planar, curved or undulating surface which is usually smooth, polished or slickensided and which shows evidence of shear displacement.
SZ			**Sheared Zone#**		Zone of rock material with roughly parallel near planar, curved or undulating boundaries cut by closely spaced joints, sheared surfaces or other defects. Some of the defects are usually curved and intersect to divide the mass into lenticular or wedge shaped blocks.
MB			**Mechanical Break**		A break in rock mass not caused by natural effects. Example causes include drilling, testing and storage
SH			**Seams**	**Sheared Seam#**	Seam of roughly parallel boundaries of rock substance cut by closely spaced joints or cleavage surfaces.
CR				**Crushed Seam#**	Seam with roughly parallel boundaries composed of mainly angular fragment of the host rock substance.
NF	SS*			**Infilled Seam**	Seam with distinct roughly parallel boundaries. The infill is caused by migration of soil into open joints.
EW				**Extremely Weathered Seam**	Seam of soil substance weathered from host rock.

NOTES: # sheared, surfaces, sheared zones, sheared seams and crushed seams are generally faults in geological terms.
* SS = Soil Seam where not possible to determine origin
Healed defects are preceded by "healed"

Defect Planarity

Symbol	Description
PL	planar
CU	curved
UN	undulating
ST	stepped
IR	irregular

NOTE: where large scale waviness is observed it should be further described

Defect Roughness

Symbol	Description
vr	Very Rough
ro	Rough
sm	Smooth
po	Polished
sl	Slickensided

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Infill/Coating

Symbol	Description
cn	clean
sn	stained
vn	veneered
co	coated
op	open/voided
Ca	Calcium Carbonate
Fe	Iron Oxide
Ch	Chlorite
Qz	Quartz

Vesicularity

Symbol	Description	Porosity
D	Dense	Negligible
NV	Non-vesicular	< 10%
SV	Slightly vesicular	10 - 20%
HV	Highly vesicular	> 20%

Cementation and Duricrust

'Weakly cemented' soils are easily disaggregated by hand in air or water.

'Moderately cemented' soils require effort to disaggregate the soil by hand in air or water.

Consistent cementation throughout the material is classified as a 'Duricrust' and logged as a rock

Duricrust Mass Grade

Grade	Term	Description
DI	Massive or Hardspan	>90% duricrust rock forms continuous framework
DII	Vuggy or Patchy	50-90% duricrust rock forming continuous framework around soil(vuggy) or rock (patchy) materials
DIII	Nodular or Fragmental	<50% cemented gravel or cobble size nodules or fragments within soil (described as soil)

Carbonate Soils and Rocks

Rocks and soils with less than approximately 50% carbonate content as indicated by weak or sporadic effervescence in the presence of 10% HCl solution are prefixed 'Calcareous'.

Soils with >50% carbonate are prefixed 'Carbonate'.

Sedimentary Rocks comprising 90% or more carbonate are described using the appropriate rock type name (see rock description). Where carbonate content is 50% to <90%, the rock type is prefixed by 'IMPURE'.

Field Sampling and Testing Abbreviations

Symbol	Description
V	Uncorrected Borehole Vane Shear (kPa) – Peak/Residual
HV	Uncorrected Hand Vane Shear (kPa) – Peak/Residual
PP	Pocket Penetrometer (kPa)
SPT	Standard Penetration Test
N	Uncorrected SPT blow count for 300 mm
N*	SPT with sample collected
RW	SPT rod weight only (SPT N < 1)
HW	SPT rod and hammer weight (SPT N < 1)
HB	SPT Hammer Bouncing
FPM	Field Permeability
Lu	Lugeon/Packer Test (L/m/min)
$Is_{(50)}$(A)	Axial Point Load Strength Index (MPa)
$Is_{(50)}$(D)	Diametral Point Load Strength Index (MPa)
$Is_{(50)}$(I)	Irregular Point Load Strength Index (MPa)
U(X)	Undisturbed Sample (X) mm diameter
UP	Undisturbed Piston Sample
DS	Disturbed Sample
BS	Bulk Sample
E	Environmental Sample
RQD	Rock Quality Designation (%)

Symbol	Description
SCR	Solid Core Recovery (%)
TCR	Total Core Recovery (%)
DCP	Dynamic Cone Penetration Resistance (blows/100 mm)
PSP	Perth Sand Penetrometer Resistance (blows/ 150 mm)
PID	Photoionization Detector

Water

Symbol	Description
▼	Water level (static)
▽	Water level (during drilling)
▷	Water inflow
◁	Water outflow
◀	Complete water loss

Drilling Method

Drilling Method Symbol	Description
ADV	Auger Drilling – V-Bit (100mm)
AS	Auger Screwing
WB	Wash Boring
B	Blank Bit*
T	Tungsten Carbide Bit*
RR	Rock Roller/Tricone
DHH	Down Hole Hammer
PD	Percussion Drilling
CT	Cable Tool
HA	Hand Auger
DT	Diatube (114mm)
NMLC	NMLC Size Core – Triple Tube (50mm diameter)
NQ3, HQ3, PQ3	Wireline Size Core – Triple Tube (45mm, 61mm, 83mm diameter)
NQ, HQ, PQ	Wireline Size Core – Double Tube (48mm, 64mm, 85mm diameter)
RC	Reverse Circulation
CA	Casing Advancer
VC	Vibro Coring
SC	Sonic Coring
GP	Geoprobe Continuous Sampling

*Drill bit symbol used as suffix to drilling method symbol, e.g. ADV indicates auger drilling with V-bit

Drilling Support

Symbol	Description
U	Unsupported
C	Casing
M	Mud
W	Water

AECOM **Engineering Log** **Final** **BOREHOLE No. A-BH02**

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	14/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353191.1 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315182.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	2.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U						0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	D		ROAD SURFACE
										FILL: gravelly SAND: fine to coarse grained; yellow-brown; gravel is fine to coarse, sub-angular			PAVEMENT MATERIAL
NDD	U					2.0	1.0			FILL: clayey GRAVEL: fine to medium; yellow-brown; sub-rounded to sub-angular; with sand, with frequent rootlets	D		FILL
			10/4/24				1.5		CH	CLAY: high plasticity; pale grey	w>PL	S	ALLUVIAL SOIL
			14/3/24		ES_2.00-2.20	1.0	2.0						
					DS_2.40-2.50		2.5						
				PP=20, 30, 60 kPa SPT:2,2,1 N=3 PID=8.6	N*_2.50-2.95	0.0	3.0						
					ES_3.10-3.30				SM	silty SAND: fine to medium grained; grey and brown	M	L	
					DS_3.30-3.50		3.5						
AD/T	U				U75_3.60-4.00	-1.0	4.0						
				SPT:3,4,3 N=7 PID=9.8	N*_4.00-4.45				SP	SAND: fine to medium grained; brown-grey; with silt			
						-2.0	4.5						
							5.0					L-MD	
					DS_5.10-5.30								
				SPT:7,7,6 N=13 PID=3.2	N*_5.30-5.75		5.5						
						-3.0	6.0						
WB	U						6.5						
				SPT:5,5,5 N=10		-4.0	7.0						
					N*_7.05-7.25								
							7.5						
						-5.0	8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH02**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	14/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353191.1 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315182.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	2.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U				DS_8.10-8.30				MH	sandy SILT: high plasticity; grey	w>PL	VS	ALLUVIAL SOIL *(continued)*
				PID=0.9 PP=20, 20, 20 kPa SPT:0,0,2 N=2 PP=0 kPa	N*_8.30-8.75	-6.0	8.5						
							9.0		SP	SAND: fine to medium grained; grey; with silt	W	L	9.00 - 9.45 m: U75 attempted, no recovery
				SPT:2,3,4 N=7	N*_9.80-10.25	-7.0	9.5						
							10.0						
							10.5			*A-BH02 terminated at 10.30 m.* *Target depth. Standpipe Piezometer Installed.*			
						-8.0	11.0						
							11.5						
						-9.0	12.0						
							12.5						
						-10.0	13.0						
							13.5						
						-11.0	14.0						
							14.5						
						-12.0	15.0						
							15.5						
						-13.0	16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH03**

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	13/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353171.0 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315219.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U			DS_0.00-0.20		0.0			FILL: gravelly SILT: low plasticity; pale brown and dark grey; gravel is fine to medium, sub-angular, igneous, with sand, fine to coarse grained		w<PL		FILL
				ES_0.30-0.40	3.0	0.5			FILL: CLAY: medium plasticity; dark brown mottled orange; with sand, fine to coarse grained				
				ES_0.70-0.80				CI-CL	CLAY: low to medium plasticity; brown mottled pale yellow		w>PL	F	ALLUVIAL SOIL
				DS_0.80-1.50		1.0							
			SPT:4,3,4 N=7	N*_1.50-1.95	2.0	1.5							
				ES_2.00-2.10		2.0							
				DS_2.60-3.00	1.0	2.5							
				ES_2.80-3.00		3.0							
AD/T	U	▽ 13/12/23	SPT:0,0,0 N=0	N*_3.00-3.45				SM	silty SAND: fine to medium grained; grey At 3.25 m: trace roots, up to 20 mm thick		W	VL	
				DS_4.30-4.50	0.0	3.5							
			SPT:0,5,8 N=13	N*_4.50-4.95	-1.0	4.5		SP	SAND: fine to medium grained; grey; trace clay			MD	
				DS_5.30-5.50		5.0							
			SPT:5,7,9 N=16	N*_6.00-6.45	-2.0	5.5							
				DS_6.80-7.00	-3.0	6.0			from 6.45 m, becoming dark grey				
				DS_7.80-8.00	-4.0	6.5						VL	
						7.0							
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH03**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	13/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353171.0 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315219.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U		SPT:0,0,0 N=0		-5.0	8.5		SP	SAND: fine to medium grained; grey; trace clay *(continued)* from 8.00 m: clay absent	W	VL	ALLUVIAL SOIL *(continued)* 8.00-8.50m: Hole collapsing after SPT at 8.00 m
									A-BH03 terminated at 8.50 m. *Collapse*			
					-6.0	9.5						
					-7.0	10.5						
					-8.0	11.5						
					-9.0	12.5						
					-10.0	13.5						
					-11.0	14.5						
					-12.0	15.5						
						9.0						
						10.0						
						11.0						
						12.0						
						13.0						
						14.0						
						15.0						
						16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH03A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	14/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353169.8 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315219.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.5 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U					3.0	0.5			FILL: gravelly SILT: low plasticity; pale brown and dark grey; gravel is fine to medium, sub-angular, igneous, with sand, fine to coarse grained	w<PL		FILL
										FILL: CLAY: medium plasticity; dark brown mottled orange; with sand, fine to coarse grained			
							1.0		CI-CL	CLAY: low to medium plasticity; brown mottled pale yellow	w>PL	F	ALLUVIAL SOIL
					U75_1.50-1.95	2.0	1.5						
			11/4/24				2.0						
			20/3/24			1.0	2.5						
							3.0		SM	silty SAND: fine to medium grained; grey		VL	
WB	U					0.0	3.5						
							4.0						
						-1.0	4.5						
							5.0						
						-2.0	5.5						
							6.0			*A-BH03A terminated at 6.00 m.* *Target depth. Standpipe Piezometer Installed.*			
						-3.0	6.5						
							7.0						
						-4.0	7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. A-BH06**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT/RAH	**End Date:**	19/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353311.0 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315895.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.5 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			PID=3.3	DS_0.05-0.40					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick	D		CARPARK SURFACE PAVEMENT MATERIAL
HA	U			PID=3.5	ES_0.40-0.60	13.0	0.5			FILL: sandy GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous; sand is fine to coarse grained, trace silt, slight organic odour	M		FILL
							1.0			FILL: clayey SAND: fine to medium grained; pale brown-grey and dark grey; with gravel, fine to medium, angular, igneous			
				PID=4.7	ES_1.00-1.20		1.5			FILL: sandy CLAY: medium plasticity; pale grey to pale brown; sand is fine to medium grained	w~PL		
AD/T	U			PID=0 SPT:4,4,5 N=9 PP=240, 290, 200 kPa	ES_1.50-1.70	12.0	2.0		CH	CLAY: high plasticity; pale grey mottled dark red; gravel, fine to medium, red-brown, angular to sub-angular, ironstone	w<PL	St	RESIDUAL SOIL
				SPT:6,8,12 N=20	DS_2.00-2.45		2.5					VSt	
				PID=1.7	ES_3.00-3.10	11.0	3.0						
				SPT:6,17,26 N=43	N*_3.50-3.95	10.0	3.5					H	
							4.0			*Borehole A-BH06 log continued as cored log from 3.95 m.*			
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. A-BH07A**

Sheet: 1 of 5

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	21/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353334.1 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315969.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	15.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				15.0	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 30 mm, 60 mm thick		D		CARPARK SURFACE
HA	U					0.5			FILL: clayey GRAVEL: medium to coarse; dark grey; angular to sub-angular; igneous		w~PL		PAVEMENT MATERIAL FILL
									FILL: sandy CLAY: medium to high plasticity; brown; with gravel, fine to coarse, angular to sub-rounded from 0.70 m: with cobbles, brown-grey, angular				
						1.0			FILL: CLAY: high plasticity; red; with gravel, fine to medium, sub-rounded to sub-angular		w~PL		
					14.0								
				DS_1.30-1.50		1.5							
AD/T	U	NOT OBSERVED	PP=80, 210, 270 kPa SPT:4,4,7 N=11	N*_1.50-1.95				CH	CLAY: high plasticity; pale grey mottled red		w<PL	St	RESIDUAL SOIL
					13.0	2.5							
				DS_2.70-3.00		3.0							
			PP=310, 340, 300 kPa SPT:6,9,12 N=21	N*_3.00-3.45	12.0							VSt	
						3.5							
						4.0			*Borehole A-BH07A log continued as cored log from 3.70 m.*				
						4.5							
						5.0							
						5.5							
						6.0							
						6.5							
						7.0							
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. A-BH09**

Sheet: 1 of 5

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA/GB	**End Date:**	06/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353356.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316066.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	14.6 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data										Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U						0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 35 mm thick	D		CARPARK SURFACE
							0.5			FILL: gravelly SAND: fine to coarse grained; pale brown; gravel is fine to coarse, sub-rounded to sub-angular, igneous, trace clay			PAVEMENT MATERIAL
HA	U			PID=9.8	ES_0.10-0.20	14.0					w~PL		FILL
				PID=10.1	ES_0.50-0.60		1.0			FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to coarse, sub-rounded to sub-angular, igneous			
										FILL: CLAY: high plasticity; brown-grey			
					DS_1.10-1.40				CH	FILL: sandy CLAY: medium to high plasticity; brown; sand is fine to coarse grained	w<PL	St	RESIDUAL SOIL
				PP=40, 520, 300 kPa SPT:3,5,10 N=15	N*_1.50-1.95	13.0	1.5			CLAY: high plasticity; red mottled grey; with sand, fine to medium grained; with gravel, medium to coarse, sub-rounded to sub-angular, ironstone			
					ES_2.00-3.00	12.0	2.0						
AD/T	U			PP=250, 230, 410 kPa SPT:5,7,9 N=16	N*_3.00-3.45		3.0		CH	sandy CLAY: high plasticity; pale grey; sand is fine to coarse grained; with gravel, orange-brown and dark red, angular to sub-angular, ironstone and sandstone	w<PL	VSt	
					DS_3.50-4.00	11.0	3.5						
				PP=420, 470 kPa SPT:8,10,14 N=24	N*_4.50-4.95	10.0	4.0						
					DS_5.50-6.00	9.0	4.5					H	
				PP=480, >500, >500, >500 kPa SPT:4,9,16 N=25	N*_6.00-6.45		5.0						
							5.5						
							6.0						
							6.5			*Borehole A-BH09 log continued as cored log from 6.45 m.*			
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH10B**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	14/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353367.6 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316121.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	14.6 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U								FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 35 mm, 50 mm thick		D		CARPARK SURFACE PAVEMENT MATERIAL
AD/T	U	NOT OBSERVED			14.0	0.5			FILL: sandy GRAVEL: fine to coarse; dark grey; sub-rounded to sub-angular; sand is fine to coarse grained		D		FILL
						1.0			FILL: gravelly SAND: fine to coarse grained; yellow-brown; gravel is fine to coarse, rounded to sub-angular		w<PL		
				DS_1.20-1.50				CH-CI	FILL: gravelly CLAY: medium to high plasticity; grey; gravel is fine to coarse, rounded to sub-angular		w<PL	H	RESIDUAL SOIL
			SPT:15,25,25/100mm N=R	N*_1.50-1.90	13.0	1.5			silty CLAY: medium to high plasticity; pale grey mottled red; with sand, fine to coarse grained; with gravel, fine to medium, sub-rounded to sub-angular, ironstone				
						2.0							
			SPT:2,11,17 N=28	N*_2.10-2.55		2.5							
									Borehole A-BH10B log continued as cored log from 2.55 m.				
						3.0							
						3.5							
						4.0							
						4.5							
						5.0							
						5.5							
						6.0							
						6.5							
						7.0							
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH13**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	01/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	01/12/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353544.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316578.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.9 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U		11/12/23 ▼	PID=3.4	ES_0.00-0.20	4.9	0.0			TOPSOIL: silty CLAY: low to medium plasticity; dark brown-grey		w~PL		TOPSOIL
					DS_0.00-1.00		0.5			FILL: silty CLAY: low to medium plasticity; orange-brown		w<PL		FILL
				PID=6.2	ES_1.00-1.20	4.0	1.0							
					DS_1.00-2.00		1.5							
				PP=150, 170, 190 kPa SPT:4,4,5 N=9	N*_1.50-1.95	3.0	2.0							
				PID=17.8	ES_2.00-2.20									
					DS_2.00-3.00		2.5		CH	silty CLAY: high plasticity; dark brown-grey; slight estuarine odour		w>PL	VS- S	ALLUVIAL SOIL
				PID=13.9 SPT:0,0,1 N=1 PP=70, 80, 80 kPa	ES_3.00-3.20	2.0	3.0							
					N*_3.20-3.45		3.5							
						1.0	4.0		CH	silty CLAY: high plasticity; pale grey		w~PL	St	RESIDUAL SOIL
				PP=150, 190, 200 kPa SPT:3,3,7 N=10	N*_4.50-4.95	0.0	4.5							
							5.0							
							5.5							
						-1.0	6.0							
				SPT:10,11/30mm N=R PP=200, 300 kPa	N*_6.00-6.18				CH	sandy CLAY: high plasticity; pale blue-grey; sand is fine grained			H	
							6.5			*A-BH13 terminated at 6.18 m.* *Target depth. Standpipe Piezometer Installed.*				
						-2.0	7.0							
							7.5							
						-3.0	8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH14**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	01/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	01/12/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353583.5 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316674.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.1 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U		11/12/23	PID=5.8	ES_0.00-0.10	4.0	0.0			TOPSOIL: silty CLAY: low to medium plasticity; dark brown-grey		w~PL		TOPSOIL
							0.5			FILL: silty CLAY: low plasticity; dark brown-grey		w<PL		FILL
					DS_0.00-1.00		1.0							
				PID=5.2	ES_1.00-1.20	3.0								
					DS_1.00-2.00		1.5							
				PP=150, 280, 300 kPa SPT:6,4,4 N=8	N*_1.50-1.95					FILL: silty CLAY: low to medium plasticity; pale grey mottled orange-brown		w~PL		
				PID=7.5	ES_2.00-2.20	2.0	2.0							
					ES_2.20-2.40									
					DS_2.00-3.00		2.5							
							3.0		CH	silty CLAY: high plasticity; pale grey; slight estuarine odour		w~PL	St	ALLUVIAL SOIL
				PID=11.8 SPT:2,4,6 N=10 PP=100, 190, 170 kPa	ES_3.00-3.20	1.0								
					N*_3.00-3.45		3.5							
							4.0							
						0.0								
							4.5							
				SPT:12,16,24 N=40 PP=>500 kPa	N*_4.50-4.95				CH	silty CLAY: high plasticity; pale orange-brown		w<PL	H	RESIDUAL SOIL
							5.0							
						-1.0								
							5.5							
							6.0							
				SPT:20,10/30mm N=R PP=300, 250, 150 kPa	N*_6.00-6.18	-2.0								
							6.5			*A-BH14 terminated at 6.18 m.* *Target depth. Standpipe Piezometer Installed.*				
							7.0							
						-3.0								
							7.5							
							8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH15**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/11/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	27/11/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353628.4 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316794.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.3 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U		11/12/23	PID=14	ES_0.10-0.20	3.0	0.0			FILL: silty GRAVEL: fine to medium; dark grey; angular; igneous (ballast), with organic matter	M		FILL
				PID=13	ES_0.30-0.40		0.5			FILL: silty CLAY: low to medium plasticity; pale brown to brown	w<PL		
					DS_0.10-1.00		1.0						
						2.0	1.5		CI-CL	silty CLAY: low to medium plasticity; dark brown-grey	w>PL	F- St	ALLUVIAL SOIL
				SPT:3,4,5 N=9	N*_1.50-1.95		2.0		CI-CL	silty CLAY: low to medium plasticity; pale brown to grey			
						1.0	2.5					St	
					DS_2.00-3.00								
					DS_2.50-2.70								
			27/11/23		ES_3.00-3.05		3.0						possible perched water
				PP=105, 75, 125 kPa SPT:3,5,7 N=12	ES_3.10-3.15								
					N*_3.00-3.45	0.0	3.5		CH-CI	silty CLAY: medium to high plasticity; pale grey mottled red-brown	w<PL	St-VSt	RESIDUAL SOIL
						-1.0	4.0		CH-CI	CLAY: medium to high plasticity; pale brown to red-brown		H	
				SPT:5,12,14 N=26	N*_4.50-4.95		4.5						
			27/11/23				5.0						
						-2.0	5.5						
				SPT:10,8/0mm N=R	N*_6.00-6.16		6.0						
						-3.0	6.5			*A-BH15 terminated at 6.16 m.* *Target depth. Standpipe Piezometer Installed.*			
							7.0						
						-4.0	7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH16**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/11/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	27/11/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353672.0 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316913.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.2 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U		11/12/23		DS_0.20-0.30	3.0	0.5			FILL: gravelly CLAY: medium to high plasticity; dark grey; gravel is fine to coarse, sub-angular, igneous (ballast), with rootlets	w<PL		FILL
										FILL: CLAY: high plasticity; brown-grey; with gravel, fine to coarse, sub-angular, igneous (ballast)			
						2.0	1.0		CH	CLAY: high plasticity; dark grey to grey mottled pale orange from 1.30 m: becoming grey	w~PL	F- St	ALLUVIAL SOIL
AD/T	U		27/11/23	PP=70, 90, 150 kPa SPT:2,4,5 N=9	N*_1.50-1.95	1.0	1.5						
							2.0						
							2.5						
				PP=80, 140, 70 kPa SPT:2,2,2 N=4	N*_3.00-3.45	0.0	3.0		CH-CI	silty CLAY: medium to high plasticity; pale grey mottled yellow-brown; trace fine grained sand		F	
							3.5						
							4.0						
					DS_4.20-4.50	-1.0	4.5					St	
				PP=120, 190, 420 kPa SPT:4,5,8 N=13	N*_4.50-4.95								
						-2.0	5.0						
							5.5						
							6.0						
				PP=550, 480, 490 kPa SPT:5,9,12 N=21	N*_6.00-6.45	-3.0	6.5		CH-CI	CLAY: medium to high plasticity; pale grey mottled orange	w<PL	VSt	RESIDUAL SOIL
										A-BH16 terminated at 6.45 m. *Target depth. Standpipe Piezometer Installed.*			
						-4.0	7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH16A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	01/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	01/12/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353672.1 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316913.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.3 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U	NOT ENCOUNTERED	PID=5.2	ES_0.10-0.20	3.0	0.5			FILL: gravelly CLAY: medium to high plasticity; dark grey; with rootlets, gravel is fine to coarse, sub-angular, igneous (ballast)		w<PL		FILL
			PID=6.4	DS_0.00-1.00 ES_0.50-0.60	2.5	1.0			FILL: CLAY: high plasticity; brown-grey; with gravel, fine to coarse, sub-angular, igneous (ballast)				
			PID=6.5	DS_1.00-2.00 ES_1.50-1.60	2.0	1.5		CH	CLAY: high plasticity; grey to dark grey		w~PL	F- St	ALLUVIAL SOIL
				ES_2.20-2.50 DS_2.00-2.80	1.5 1.0	2.0 2.5							
					0.5	3.0			*A-BH16A terminated at 2.80 m.* *Target depth*				
					0.0	3.5							
					-0.5	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **A-BH17**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/KH	**End Date:**	05/03/2024
Location:	River Road, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353220.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315687.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	2.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.05		0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick	D		ROAD SURFACE
HA	U						0.5			FILL: sandy GRAVEL: fine to medium; pale brown; sub-rounded to sub-angular; sand is fine to medium grained			PAVEMENT MATERIAL
					ES_0.50-0.60					FILL: clayey SAND: fine to medium grained; brown; trace fine gravel	D		FILL
						2.0	1.0						
AD/T	U				ES_0.90-1.00				CI	sandy CLAY: medium plasticity; brown-grey; sand is fine to medium grained	w<PL	VSt	RESIDUAL SOIL
					ES_1.00-1.10								
				SPT:5/20 HB N=R			1.5			CLAYSTONE: pale brown	w<PL	H	PATONGA CLAYSTONE
										Borehole A-BH17 log continued as cored log from 1.52 m.			
							2.0						
							2.5						
							3.0						
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH04**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	08/03/2024
Location:	Panonia Rd, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353309.4 m
		Inclination:	-90°	**Northing:**	6315392.6 m
Drill Rig:	Comacchio Geo 305	**Bearing:**	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	2.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U		PID=8.5	ES_0.10-0.20		0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 45 mm thick	D		ROAD SURFACE
						0.5			FILL: sandy GRAVEL: fine to medium; rounded to sub-rounded; sand is fine to coarse grained, trace silt			PAVEMENT MATERIAL
NDD	U		PID=21.9	ES_0.50-0.60	2.0	1.0		SM	FILL: SAND: fine to medium grained; brown; trace gravel	D	L	ALLUVIAL SOIL
									silty SAND: fine to medium grained; brown; trace gravel, rounded, river, trace rootlets and bark, weak organic odour			
			PID=1.4	ES_1.40-1.50		1.5						
AD/T	U	NOT ENCOUNTERED	SPT:6,5,4 N=9 PID=1.4	N*_1.50-1.95	1.0	2.0		CL	silty sandy CLAY: low plasticity; dark grey; sand is fine grained	w~PL	St	
				ES_2.00-2.10								
				ES_2.40-2.50		2.5		CL	silty sandy CLAY: low plasticity; pale grey mottled red; sand is fine grained	w<PL	H	RESIDUAL SOIL
			SPT:12,22,18 N=40	N*_2.50-2.75	0.0							
				N*_2.75-2.95		3.0						
				ES_3.40-3.50		3.5						
			SPT:14,11,9 N=20 PP=440, 440 kPa	N*_4.00-4.45	-1.0	4.0						
						4.5		CH-CI	CLAY: medium to high plasticity; grey mottled orange-brown; trace sand			
				ES_5.00-5.10	-2.0	5.0						
			PP=330, >600, >600 kPa SPT:6,8,13 N=21	N*_5.50-5.95	-3.0	5.5						
				ES_6.00-6.10		6.0						
						6.5			*ACM-BH04 terminated at 6.10 m.* *Target depth*			
					-4.0	7.0						
						7.5						
					-5.0	8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. ACM-BH05**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	08/12/2023
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353387.7 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315909.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	12.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				12.0				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 100 mm thick	M		CARPARK SURFACE
				ES_0.10-0.20								PAVEMENT MATERIAL
				DS_0.30-0.50		0.5			FILL: clayey SAND: fine to coarse grained; pale brown; with gravel, fine to coarse, sub-rounded to sub-angular	M		FILL
HA	U								FILL: clayey SAND: fine to coarse grained; pale grey; with gravel, fine to coarse, sub-rounded to sub-angular			
				ES_0.90-1.00		1.0						
					11.0							
				DS_1.30-1.50		1.5						
			SPT:4,4,5 N=9	N*_1.50-1.95								
				ES_1.95-2.10		2.0						
					10.0							
						2.5						
				DS_2.90-3.00		3.0						
			SPT:0,0,0 N=0	N*_3.00-3.45	9.0			CI	sandy CLAY: medium plasticity; pale grey; sand is fine to medium grained	w>PL	VS	ALLUVIAL SOIL
						3.5						
				DS_3.90-4.00		4.0						
					8.0							
				DS_4.30-4.50		4.5		CI	sandy CLAY: medium plasticity; brown mottled red-orange; sand is fine to medium grained	w<PL	VSt	
AD/T	U	NOT ENCOUNTERED	SPT:6,8,10 N=18	N*_4.50-4.95		5.0						
					7.0			CH	sandy CLAY: high plasticity; red-brown mottled pale grey; sand is fine to medium grained	w<PL	VSt	RESIDUAL SOIL
						5.5						
				DS_5.70-6.00		6.0						
			SPT:9,13,15 N=28	N*_6.00-6.45	6.0							
						6.5						
						7.0						
					5.0							
				DS_7.30-7.50		7.5						
			SPT:12,15,17 N=32	N*_7.50-7.95							H	
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH05**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	08/12/2023
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353387.7 m	**RL:**	12.1 m
Drill Rig:	Comacchio Geo 305	**Northing:**	6315909.5 m	**Ver. Datum:**	m AHD
Hole Diameter:	125 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Inclination:	-90°				
Bearing:	N/A				

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U	NOT ENCOUNTERED			4.0	8.5		CH	sandy CLAY: high plasticity; red-brown mottled pale grey; sand is fine to medium grained *(continued)*	w<PL	H	RESIDUAL SOIL *(continued)*
			SPT:8,21,20 N=41	N*_9.00-9.45	3.0	9.0			CLAYSTONE: dark red-brown; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
						9.5			*ACM-BH05 terminated at 9.45 m. Target depth*			
					2.0	10.0						
					1.0	10.5						
					0.0	11.0						
					-1.0	11.5						
					-2.0	12.0						
					-3.0	12.5						
						13.0						
						13.5						
						14.0						
						14.5						
						15.0						
						15.5						
						16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH05A**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	19/03/2024
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	125 mm	**Easting:**	353387.0 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315909.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	12.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED			12.0				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 100 mm thick			CARPARK SURFACE
HA	U		PID=10.7	ES_0.10-0.20					FILL: clayey SAND: fine to coarse grained; pale brown; with gravel, fine to coarse, sub-rounded to sub-angular	D		PAVEMENT MATERIAL
				DS_0.25-0.60					FILL: sandy CLAY: high plasticity; grey mottled red; trace gravel, fine, sub-angular to sub-rounded	w~PL		FILL
			PID=14.3	ES_0.45-0.55	11.5	0.5			FILL: clayey SAND: fine grained; pale grey; trace fine gravel	M		
									ACM-BH05A terminated at 0.60 m. *Hand auger refusal*			
					11.0	1.0						
					10.5	1.5						
					10.0	2.0						
					9.5	2.5						
					9.0	3.0						
					8.5	3.5						
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH09**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/12/2023
Project:	Wyong Town Centre	**Logged by:**	GB	**End Date:**	07/12/2023
Location:	Rose Street Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353519.9 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316155.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	9.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD DT	U U						0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 20 mm, 30 mm thick	D		ROAD SURFACE
										FILL: sandy GRAVEL: fine; grey; angular; igneous; sand is fine to coarse grained			PAVEMENT MATERIAL
							0.5			FILL: sandy GRAVEL: fine to medium; grey to dark grey; angular; igneous, sand is fine to coarse grained	w<PL		FILL
HA	U			PID=6.2	ES_0.60-0.70	9.0	1.0			FILL: CLAY: medium to high plasticity; brown mottled grey and red; with sand, fine to coarse grained, trace fine to medium igneous gravel, slight earthy odour			
				PID=7.7	ES_1.00-1.10								
				PID=14.3	ES_1.20-1.30		1.5			FILL: CLAY: medium plasticity; brown-grey; with sand, fine to coarse grained, trace fine to medium gravel from 1.50 m to 1.80 m: trace timber fragments			
				PID=17.6	ES_1.50-1.60								
AD/T	U				DS_1.90-2.00	8.0	2.0		CI	CLAY: medium plasticity; pale grey mottled orange; with sand, fine grained, slight petroleum odour	w~PL	St	RESIDUAL SOIL
				PID=18.4 PP=390, 480, 520 kPa SPT:4,5,7 N=12	ES_2.00-2.10 N*_2.10-2.45		2.5						
				PID=11.1 SPT:21/140 N=R	ES_2.90-3.00 N*_3.00-3.14	7.0	3.0			SANDSTONE: fine to medium grained; orange-brown; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
			8/3/24				3.5						
										Borehole ACM-BH09 log continued as cored log from 3.52 m.			
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. ACM-BH09A**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	19/03/2024
Location:	Rose Street Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353520.1 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316155.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	9.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				9.5	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 30 mm thick	M		CARPARK SURFACE
									FILL: sandy GRAVEL: fine to medium; dark grey; angular; igneous, sand is fine to coarse grained			PAVEMENT MATERIAL
HA	U	NOT ENCOUNTERED	PID=7.1	ES_0.50-0.60	9.0	1.0			FILL: CLAY: medium to high plasticity; brown mottled red and grey; with sand, fine grained, trace fine gravel	w<PL		FILL
			PID=4.3	ES_1.30-1.40	8.5	1.5						
			PID=14.2	ES_1.80-1.90	8.0	2.0						
					7.5	2.5			*ACM-BH09A terminated at 2.00 m.* *Target depth*			
					7.0	3.0						
					6.5	3.5						
					6.0	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH10**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	14/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	200 mm	**Easting:**	353262.4 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315515.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED		ES_0.00-0.12	5.5	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 50 mm, 120 mm thick			ROAD SURFACE
									FILL: CEMENTED MATERIAL: dark grey; aggregates up to 30 mm, 70 mm thick			CEMENTED BASE
					5.0	1.0			*ACM-BH10 terminated at 0.19 m. Refusal*			
					4.5	1.5						
					4.0	2.0						
					3.5	2.5						
					3.0	3.0						
					2.5	3.5						
					2.0	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH10A**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	13/03/2024
Location:	Pacific Highway Verge (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353260.2 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315514.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.5 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U	NOT OBSERVED			5.0	0.5			TOPSOIL: silty SAND: fine to coarse grained; brown	D		TOPSOIL
									FILL: CLAY: low plasticity; dark brown; trace fine to medium gravel	w<PL		FILL
									FILL: CLAY: high plasticity; red-brown; with gravel, fine, sub-angular to sub-rounded, igneous	w~PL		
			SPT:6,10,7 N=17	N*_1.00-1.45		1.0			FILL: CLAY: low plasticity; dark brown	w<PL		
					4.0	1.5						
						2.0			FILL: CLAY: high plasticity; brown			
					3.0	2.5		CH-CI	silty CLAY: medium to high plasticity; pale grey mottled brown	w~PL	VSt-H	RESIDUAL SOIL
			SPT:4,12,16 N=28 PP=550 kPa	N*_2.56-2.95		3.0						
				DS_3.00-3.20								
					2.0	3.5						
				DS_3.70-4.00		4.0		CH-CI	silty CLAY: medium to high plasticity; orange-brown	w<PL	H	
			SPT:6/10mm N=R						*Borehole ACM-BH10A log continued as cored log from 4.01 m.*			
						4.5						
						5.0						
						5.5						
						6.0						
						6.5						
						7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **ACM-BH12**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	20/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	20/12/2012
Location:	202B Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	75 mm	**Easting:**	353113.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315231.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=3.5	ES_0.00-0.20	3.0	0.5			FILL: sandy GRAVEL: fine to coarse; grey; angular to sub-rounded; igneous; sand is fine to coarse grained	D		FILL
									FILL: gravelly SAND: fine to coarse grained; brown; gravel is fine to coarse, sub-rounded to sub-angular, igneous, trace clay			
			PID=4.6	ES_0.50-0.60					FILL: gravelly SAND: fine to coarse grained; grey; gravel is fine to medium, sub-rounded to sub-angular, strong hydrocarbon odour			
					2.5	1.0			*ACM-BH12 terminated at 0.80 m.* *Terminated due to services*			
					2.0	1.5						
					1.5	2.0						
					1.0	2.5						
					0.5	3.0						
					0.0	3.5						
					-0.5	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. ACM-BH12A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	20/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	20/12/2023
Location:	202B Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353114.8 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315232.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=1.5	ES_0.00-0.20	3.0	0.5			FILL: clayey GRAVEL: medium to coarse; dark grey; angular to sub-rounded; igneous		D		FILL
									FILL: sandy CLAY: medium plasticity; brown mottled red; sand is fine to coarse grained; trace fine to medium gravel		w~PL		
			PID=3.2	ES_0.50-0.60									
						1.0			FILL: clayey GRAVEL: medium to coarse; grey; angular to sub-rounded		D		
											w<PL		
			PID=13.1	ES_1.00-1.20				CI-CL	FILL: CLAY: medium plasticity; blue-grey; strong petroleum odour		w~PL	F	ALLUVIAL SOIL
					2.0	1.5			sandy CLAY: low to medium plasticity; dark grey; sand is fine grained, trace tree roots and charcoal				
AD/T	U		PID=2.4 SPT:3,3,5 N=8	ES_1.50-1.70 N*_1.70-1.95									
				U50_2.00-2.45		2.0							
					1.0	2.5		CI-CL	sandy CLAY: low to medium plasticity; grey; sand is fine grained		w>PL	VS-S	
			PP=40 kPa SPT:0,0,0 N=0	N*_3.00-3.45		3.0							
					0.0	3.5			At 3.50 m: CLAY with sand				
				DS_4.00-4.50		4.0		SM	silty SAND: fine grained; grey		W	L	
			SPT:0,2,4 N=6	N*_4.50-4.95	-1.0	4.5							
						5.0							
				U75_5.00-5.45	-2.0	5.5							
			SPT:3,4,4 N=8	N*_6.00-6.45		6.0							
					-3.0	6.5			*ACM-BH12A terminated at 6.45 m.* *Target depth*				
						7.0							
					-4.0	7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH01A/GW01A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL/ES	**End Date:**	27/03/2024
Location:	Pacific Highway (Ampol), Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353146.8 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315010.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.6 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.10-0.20	3.0	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 80 mm thick	M		ROAD SURFACE
										FILL: sandy GRAVEL: fine to medium; grey; angular; sand is fine to coarse grained, weakly cemented			PAVEMENT MATERIAL
HA	U			PID=1.3 SPT:3,3,3 N=6	ES_1.10-1.20 ES_1.35-1.45		1.0 1.5		CI-CL	silty CLAY: low to medium plasticity; pale brown to brown	w>PL	F	ALLUVIAL SOIL
			10/4/24	PID=1.8	ES_2.00-2.10	2.0	2.0						
				SPT:2,3,4 N=7 PID=1.4	N*_2.50-2.80 ES_2.80-2.90	1.0	2.5 3.0		SC	clayey SAND: fine to medium grained; grey to dark grey	W	VL- L	
AD/T	U		27/3/24	PID=0.7	ES_3.80-3.90	0.0	3.5 4.0						
				SPT:0,0,0 N=0	N*_4.00-4.45	-1.0	4.5 5.0		CI-CL	sandy CLAY: low to medium plasticity; grey mottled brown; sand is fine grained	w>PL	F- St	
				SPT:5,5,2 N=7	N*_5.50-5.95	-2.0	5.5 6.0			*BH01A/GW01A terminated at 6.00 m.* *Target depth. Standpipe Piezometer Installed.*			
						-3.0	6.5 7.0						
						-4.0	7.5 8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH02A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	03/04/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	03/04/2024
Location:	Pacific Highway Shoulder (Ampol), Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353156.4 m
		Inclination:	-90°	**Northing:**	6315042.4 m
Drill Rig:	Comacchio Geo 305	**Bearing:**	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.5 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U								FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick		D		ROAD SURFACE
									FILL: sandy GRAVEL: fine to medium; grey; angular; sand is fine to coarse grained, weakly cemented				PAVEMENT MATERIAL
					3.0	0.5							
				ES_0.60-0.70									
									FILL: SAND: medium to coarse grained; dark brown to dark grey; with gravel, fine to coarse, sub-angular, trace clay		D		FILL
			PID=0	ES_0.90-1.00	2.5	1.0							
AD/T	U	NOT ENCOUNTERED		DS_1.00-1.40				CI-CL	silty CLAY: low to medium plasticity; dark brown; trace sand		w>PL	F	ALLUVIAL SOIL
			PID=10	ES_1.30-1.40									
					2.0	1.5							
								CI-CL	silty CLAY: low to medium plasticity; pale brown to brown				
			PID=10	DS_1.50-2.00									
				ES_1.70-1.80									
					1.5	2.0							
				DS_2.00-2.50									
			PID=0	ES_2.40-2.50	1.0	2.5							
									from 2.50 m: brown			F- St	
				DS_2.50-3.00									
			PID=10	ES_2.80-2.90									
					0.5	3.0							
									BH02A terminated at 3.00 m. *Target depth*				
					0.0	3.5							
					-0.5	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH04**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	05/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353177.2 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315110.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	2.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U								FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 20 mm thick		M		ROAD SURFACE
									FILL: clayey SAND: fine to medium grained; orange-brown to brown; trace gravel				PAVEMENT MATERIAL
				ES_0.20-0.30									
HA	U	NOT ENCOUNTERED			2.5	0.5			FILL: sandy CLAY: low plasticity; orange-brown; with gravel, fine, sub-rounded to sub-angular		w~PL		FILL
				ES_0.80-0.90									
					2.0	1.0		CI	CLAY: medium plasticity; grey to dark grey; trace rootlets		w>PL	S	ALLUVIAL SOIL
									from 1.30 m: pale grey to grey				
				ES_1.40-1.50	1.5	1.5							
									BH04 terminated at 1.50 m. *Target depth*				
					1.0	2.0							
					0.5	2.5							
					0.0	3.0							
					-0.5	3.5							
					-1.0	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH04A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	08/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353174.9 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315113.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U		PID=11.1	ES_0.10-0.25	3.0				FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 35 mm thick		D		ROAD SURFACE PAVEMENT MATERIAL
			PID=2	ES_0.40-0.50		0.5			FILL: sandy GRAVEL: fine to coarse; dark brown; sub-rounded to sub-angular; sand is fine to coarse grained				
HA	U							CI	FILL: gravelly SAND: fine to coarse grained; brown; gravel is fine to coarse, sub-rounded to sub-angular, trace clay, weak hydrocarbon odour from 0.30 m, becoming grey		w>PL	S	ALLUVIAL SOIL
					2.0	1.0			silty CLAY: medium plasticity; dark grey from 0.80 m, becoming brown-grey				
			PID=6	ES_1.40-1.50		1.5							
AD/T	U	8/3/24 ▽	SPT:2,1,2 N=3 PP=110, 60, 60 kPa	N*_1.50-1.95	1.0	2.0							
			PID=1.4	ES_2.40-2.50		2.5							
				U75_3.00-3.50	0.0	3.0							
						3.5		CI-CL	sandy CLAY: low to medium plasticity; dark grey; sand is fine grained				
			SPT:0,0,0 N=0 PP=60, 50, 40 kPa	N*_3.50-3.95		4.0							
					-1.0				*BH04A terminated at 3.95 m.* *Target depth*				
						4.5							
					-2.0	5.0							
						5.5							
					-3.0	6.0							
						6.5							
					-4.0	7.0							
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/04/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	07/04/2024
Location:	McPherson Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353030.1 m	**RL:**	1.9 m
Drill Rig:	Comacchio Geo 305	**Northing:**	6315300.8 m	**Ver. Datum:**	m AHD
Hole Diameter:	125 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Inclination:	-90°				
Bearing:	N/A				

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log / Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U					0.0		FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick	M		ROAD SURFACE
						0.1		FILL: gravelly silty SAND: fine to medium grained; brown; gravel is fine to coarse, sub-rounded to angular, igneous			PAVEMENT MATERIAL
			PID=0.9	ES_0.40-0.50		0.5	CI-CL	FILL: gravelly silty SAND: fine to medium grained; pale grey; gravel is fine to coarse, sub-angular to sub-rounded, igneous	w>PL	S	ALLUVIAL SOIL
			PID=1.1	DS_0.50-1.00 ES_0.80-0.90		1.0		silty CLAY: low to medium plasticity; dark brown; with sand, fine grained			
		7/4/24	SPT:1,0,0 N=0			1.0					
			PID=0.9	DS_1.00-2.00		1.5					
AD/T	U		SPT:1,0,0 N=0 PID=0.9	N*_2.00-2.20 ES_2.20-2.30	0.0	2.0					
			PID=30.5	DS_2.00-3.00		2.5					
			SPT:0,2,2 N=4	N*_3.00-3.45	-1.0	3.0	CI-CL	silty CLAY: low to medium plasticity; grey; with sand, fine grained		S- F	
			PID=1.3	DS_3.00-4.00		3.5					
			SPT:3,4,5 N=9 PID=0.5	N*_4.00-4.45	-2.0	4.0	SC	clayey SAND: fine grained; brown mottled grey	W	L-MD	
						4.5		*BH05 terminated at 4.50 m.* *Target depth*			
					-3.0	5.0					
						5.5					
					-4.0	6.0					
						6.5					
					-5.0	7.0					
						7.5					
					-6.0	8.0					

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH06**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/04/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	07/04/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353185.0 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315182.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				3.0				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 85 mm thick		M		ROAD SURFACE
													PAVEMENT MATERIAL
			PID=1.3	ES_0.40-0.50		0.5			FILL: SAND: fine to medium grained; brown; with gravel, fine to medium, sub-angular, igneous, trace clay		w<PL		FILL
			PID=1.3	ES_0.80-0.90					FILL: silty CLAY: low to medium plasticity; brown; trace fine grained sand				
				DS_0.50-1.50		1.0							
			SPT:4,6,7 N=13 PP=150, 480, 460 kPa	N*_1.00-1.45	2.0								
						1.5		CI	silty CLAY: medium plasticity; brown; with sand, fine grained		w>PL	F	ALLUVIAL SOIL
AD/T	U	8/4/24	PID=1.5	DS_2.00-2.50	1.0	2.0							
						2.5							
			SPT:1,0,0 N=0 PP=60, 40, 50 kPa	N*_2.50-2.95									
				DS_2.50-3.50		3.0							
			PID=1.4	ES_3.30-3.40	0.0			SC	clayey SAND: fine grained; grey mottled brown		W	VL	
						3.5							
						4.0		SP	SAND: fine grained; grey; with clay				
			SPT:2,0,3 N=3	N*_4.00-4.45 DS_4.00-4.50	-1.0								
						4.5							
			PID=0.2	ES_4.70-4.80		5.0							
					-2.0				*BH06 terminated at 5.00 m.* *Target depth*				
						5.5							
						6.0							
					-3.0								
						6.5							
						7.0							
					-4.0								
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH09**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	14/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353159.8 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315226.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U		PID=3.4	ES_0.00-0.20	3.0	0.5			FILL: gravelly SILT: non-plastic; pale brown and dark grey; gravel is fine to medium, sub-angular, igneous, with sand, fine to coarse grained	w<PL		FILL
									FILL: CLAY: low plasticity; dark brown mottled orange; with sand, fine to coarse grained			
			PID=2.2	ES_0.90-1.00	2.5	1.0		SP	SAND: fine to coarse grained; brown and orange-brown	M	MD	ALLUVIAL SOIL
AD/T	U		SPT:4,7,9 N=16	N*_1.50-1.95	2.0	1.5						
			PID=6.4	DS_1.90-2.00	1.5	2.0						
				U50_2.50-2.90	1.0	2.5						
			PID=5.8	ES_2.90-3.00	0.5	3.0						
		14/12/23	SPT:0,0,0 N=0	N*_3.00-3.45	0.0	3.5				W	VL	
					-0.5	4.0			*BH09 terminated at 3.45 m. Target depth*			

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Engineering log should be read in conjunction with AECOM soil and rock description sheets.

AECOM **Engineering Log** **Final** **BOREHOLE No. BH25**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	05/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353427.8 m	**RL:**	11.5 m
Drill Rig:	Comacchio Geo 405	**Northing:**	6316283.9 m	**Ver. Datum:**	m AHD
Hole Diameter:	125 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Inclination:	-90°				
Bearing:	N/A				

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			ES_0.10-0.20	11.0	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick	D		ROAD SURFACE
									FILL: gravelly CLAY: low plasticity; grey; gravel is fine, sub-angular, igneous			FILL
				ES_0.70-0.80	10.5	1.0		CH-CI	silty CLAY: medium to high plasticity; brown-grey	w>PL	F	ALLUVIAL SOIL
				ES_1.20-1.30	10.0	1.5						
AD/T	U	NOT ENCOUNTERED	PP=60, 100, 120 kPa SPT:2,3,5 N=8	N*_1.50-1.95	9.5	2.0		CH-CI	CLAY: medium to high plasticity; pale yellow-brown mottled grey		F- St	
					9.0	2.5						
				ES_2.70-2.80	8.5	3.0		CH-CI	gravelly CLAY: medium to high plasticity; red-brown mottled pale grey; gravel is fine, sub-angular, ironstone	w<PL	VSt	RESIDUAL SOIL
			PP=>600, 470, 360 kPa SPT:10,12,14 N=26	N*_3.00-3.45								
					8.0	3.5			*BH25 terminated at 3.45 m. Target depth*			
					7.5	4.0						

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AECOM Engineering Log — Final

BOREHOLE No. BH26/GW26

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	24/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	24/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353410.5 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316324.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			PID=65.4	ES_0.10-0.20					FILL: BITUMINOUS SEAL: dark grey; aggregates up to 15 mm, 50 mm thick	M		ROAD SURFACE
										FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick			PAVEMENT MATERIAL
				PID=0.9	ES_0.40-0.50		0.5				M		FILL
					DS_0.40-0.90					FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to medium, sub-angular, igneous			
HA	U			PID=5.1	ES_0.80-0.90	8.0	1.0		CI-CL	FILL: SAND: fine to medium grained; dark brown mottled dark grey; with gravel, fine, sub-angular, igneous	w>PL	St	ALLUVIAL SOIL
				PID=18.2 PP=300, 300 kPa SPT:2,4,6 N=10	ES_1.10-1.20 N*_1.20-1.45					CLAY: low to medium plasticity; brown mottled grey; with sand, fine to medium grained			
				PID=21.8	ES_1.50-1.60		1.5						
						7.0	2.0		CH-CI	CLAY: medium to high plasticity; red mottled grey	w<PL	VSt-H	RESIDUAL SOIL
			11/4/24	PID=27.1	ES_2.40-2.50		2.5						
				PP=>600, >600 kPa SPT:7,10,13 N=23	N*_2.50-2.95	6.0	3.0						
				PID=30.4	ES_3.40-3.50		3.5						
					DS_3.50-4.00	5.0	4.0						
AD/T	U			PP=>600, >600 kPa SPT:9,18,20 N=38	N*_4.00-4.45					CLAYSTONE: dark red-brown; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
				PID=17.2	ES_4.50-4.60		4.5						
						4.0	5.0						
				PID=7.5	ES_5.40-5.50		5.5						
						3.0	6.0						
							6.5						
						2.0	7.0						
							7.5						
						1.0	8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH26/GW26**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	24/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	24/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353410.5 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316324.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U					0.0	8.5			CLAYSTONE: dark red-brown; extremely weathered, soil strength *(continued)*	D	H	PATONGA CLAYSTONE *(continued)*
							9.0			from 8.50 m, becoming pale brown			
						-1.0	9.5						
							10.0			*BH26/GW26 terminated at 10.00 m.* *Target depth. Standpipe Piezometer Installed.*			
							10.5						
						-2.0	11.0						
							11.5						
						-3.0	12.0						
							12.5						
						-4.0	13.0						
							13.5						
						-5.0	14.0						
							14.5						
						-6.0	15.0						
							15.5						
						-7.0	16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH27/GW27**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	25/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	25/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353438.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316399.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.2 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U					5.0	0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 20 mm thick			ROAD SURFACE
										FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 65 mm thick	D		PAVEMENT MATERIAL
				PID=1.6	ES_0.30-0.40					FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to medium, sub-angular, igneous			
					DS_0.40-0.75	4.5	0.5			FILL: sandy CLAY: low to medium plasticity; pale brown; with gravel, fine, sub-angular, igneous	w~PL		FILL
HA	U		25/3/24	PID=1.1	ES_0.80-0.90				CI-CL	CLAY: low to medium plasticity; dark brown; trace fine grained sand, trace rootlets	w>PL	S- F	ALLUVIAL SOIL
				PID=1.7	ES_1.30-1.40	4.0	1.0						
							1.5					F- St	
AD/T	U			SPT:2,3,4 N=7	N*_1.50-1.95	3.5							
				PID=6.8	ES_2.30-2.40	3.0	2.0		CH-CI	CLAY: medium to high plasticity; pale brown			
				SPT:3,4,4 N=8	N*_2.50-2.95	2.5	2.5						
						2.0	3.0						
						1.5	3.5			*BH27/GW27 terminated at 3.50 m. Target depth. Standpipe Piezometer Installed.*			
							4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH28/GW28**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	26/03/2024
Location:	Pacific Highway Shoulder (Aldi), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353461.1 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316458.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.3 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			PID=25.1	ES_0.04-0.20					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	w<PL		ROAD SURFACE
				PID=9.1	DS_0.20-0.45	4.0				FILL: gravelly CLAY: low plasticity; grey to dark grey; gravel is fine to coarse, sub-angular, igneous, with sand, fine to coarse grained	w<PL		PAVEMENT MATERIAL
					ES_0.30-0.40		0.5						FILL
HA	U		12/4/24	PID=4.3	ES_0.80-0.90		1.0			FILL: CLAY: high plasticity; red-brown; with sand, fine grained			
				SPT:0,0,2 N=2	N*_1.00-1.30								
				PID=0.5	ES_1.30-1.40	3.0	1.5		CH-CI	CLAY: medium to high plasticity; dark brown; trace fine grained sand	w>PL	S	ALLUVIAL SOIL
					U75_1.50-1.95		2.0						
						2.0	2.5						
				SPT:2,3,8 N=11	N*_2.50-2.80								
				PID=6.5	ES_2.80-2.90		3.0		CH-CI	CLAY: medium to high plasticity; grey mottled brown; trace fine grained sand	w~PL	St	
AD/T	U		26/3/24			1.0	3.5						
					DS_3.50-4.00		4.0						
				SPT:5,5,6 N=11	N*_4.00-4.45	0.0	4.5						
							5.0						
						-1.0	5.5			*BH28/GW28 terminated at 5.50 m. Target depth. Standpipe Piezometer Installed.*			
							6.0						
						-2.0	6.5						
							7.0						
						-3.0	7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH29/GW29**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	26/03/2024
Location:	North Road, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353451.7 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316510.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.08-0.20	4.7	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	M		ROAD SURFACE
									CH-CL	FILL: clayey GRAVEL: fine to coarse; grey to dark grey; sub-angular; igneous, with sand, fine to coarse grained	w>PL	F	PAVEMENT MATERIAL
HA	U				ES_0.40-0.50	4.0	0.5			CLAY: medium to high plasticity; brown mottled grey; trace fine grained sand			ALLUVIAL SOIL
				SPT:3,2,3 N=5	N*_1.00-1.20 ES_1.20-1.30		1.0 1.5						
			12/4/24		ES_1.70-1.80	3.0	2.0						
AD/T	U			SPT:4,4,6 N=10	N*_2.50-2.95 ES_2.80-2.90	2.0	2.5 3.0		CH	CLAY: high plasticity; red-brown mottled grey; trace fine grained sand	w<PL	St	RESIDUAL SOIL
			26/3/24			1.0	3.5						
				SPT:5,7,10 N=17	N*_4.00-4.45		4.0		CH-CL	sandy CLAY: medium to high plasticity; brown mottled grey; sand is fine grained		VSt	
						0.0	4.5						
					DS_5.00-5.50		5.0 5.5						
				SPT:5,5,6 N=11	N*_5.50-5.95	-1.0	6.0			*BH29/GW29 terminated at 6.00 m.* *Target depth. Standpipe Piezometer Installed.*			
						-2.0	6.5 7.0						
						-3.0	7.5 8.0						

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Engineering log should be read in conjunction with AECOM soil and rock description sheets.

AECOM **Engineering Log** **Final** **BOREHOLE No. BH30**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	17/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	17/03/2024
Location:	Anzac Avenue, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353376.9 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316308.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	10.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U									FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 160 mm thick				ROAD SURFACE
					ES_0.15-0.35							M		PAVEMENT MATERIAL
					ES_0.40-0.50		0.5			FILL: clayey SAND: fine to medium grained; pale yellow-brown; with gravel, fine, sub-angular, igneous		w<PL		FILL
					DS_0.35-0.70					FILL: CLAY: medium to high plasticity; brown; with sand, fine to medium grained, trace fine igneous gravel				
HA	U				ES_0.90-1.00	9.0	1.0		CH-CI	CLAY: medium to high plasticity; orange-brown; with sand, fine grained		w~PL	St	ALLUVIAL SOIL
					DS_0.70-1.50		1.5							
			10/4/24											
				PP=400 kPa SPT:6,10,15 N=25	N*_1.50-1.95		2.0		CH-CI	CLAY: medium to high plasticity; red-brown and grey		w<PL	VSt	RESIDUAL SOIL
					ES_2.00-2.10	8.0								
				PP=300, 500 kPa SPT:4,6,10 N=16	N*_2.50-2.95		2.5							
						7.0	3.0							
AD/T	U						3.5							
				PP=350, 500 kPa SPT:6,9,13 N=22	N*_4.00-4.45	6.0	4.0							
			17/3/24				4.5							
					DS_4.50-5.00									
						5.0	5.0							
							5.5							
							6.0							
						4.0				*BH30 terminated at 6.00 m.* *Target depth. Standpipe Piezometer Installed.*				
							6.5							
						3.0	7.0							
							7.5							
							8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH32**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	19/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353457.2 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316540.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED	PID=10.3	ES_0.015-0.15					FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick		D		ROAD SURFACE
									FILL: sandy GRAVEL: fine to medium; pale brown; angular; igneous; sand is fine to coarse grained		D		PAVEMENT MATERIAL
			PID=7.3	ES_0.15-0.65	4.5	0.5			FILL: SAND: fine grained; pale brown; with gravel, fine to medium, rounded to sub-rounded, igneous and quartz, trace clay				FILL
HA	U		PID=8.4	ES_0.65-0.80	4.0	1.0		CI	CLAY: medium plasticity; grey mottled orange; with sand, fine to coarse grained, trace wood fragments		w>PL	F	ALLUVIAL SOIL
			PID=4.7	ES_1.70-1.90	3.5	1.5		CH	CLAY: high plasticity; grey mottled dark red and orange; with fine gravel, angular, sandstone, trace fine grained sand		w~PL	St	RESIDUAL SOIL
					3.0	2.0							
					2.5	2.5							
					2.0	3.0			*BH32 terminated at 3.00 m.* *Target depth*				
					1.5	3.5							
					1.0	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH33**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	19/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353462.9 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316563.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data							Material Description		Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA DT	U	NOT ENCOUNTERED	PID=5.7	ES 0.04-0.075	4.5	0.5			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick	D		ROAD SURFACE
									FILL: SAND: fine grained; pale brown; angular; with gravel, fine to medium, rounded to angular, igneous			PAVEMENT MATERIAL
									FILL: SAND: fine to coarse grained; pale orange-brown; with gravel, fine to medium, rounded to angular, igneous and sandstone			
					4.0	1.0			*BH33 terminated at 0.18 m.* *Hand auger refusal*			
					3.5	1.5						
					3.0	2.0						
					2.5	2.5						
					2.0	3.0						
					1.5	3.5						
					1.0	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH33A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	19/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353462.9 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316563.2 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT					4.7	0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick		D		ROAD SURFACE
									FILL: SAND: fine grained; pale brown; with gravel, fine to medium, rounded to angular, igneous				PAVEMENT MATERIAL
			PID=9.5	ES_0.13-0.30	4.5				FILL: SAND: fine to coarse grained; pale orange-brown; with gravel, fine to medium, rounded to angular, igneous and sandstone		w<PL		FILL
			PID=14.3	ES_0.30-0.50									
						0.5			FILL: sandy SILT: low plasticity; brown				
					4.0				FILL: silty CLAY: high plasticity; brown; trace rootlets				POSSIBLE RELICT TOPSOIL
			PID=14.2	ES_0.80-1.00		1.0		CI	CLAY: medium plasticity; dark grey mottled orange and brown; trace fine to coarse grained sand, trace rootlets		w>PL	F	ALLUVIAL SOIL
HA	U	NOT ENCOUNTERED			3.5								
						1.5		CH	CLAY: high plasticity; grey mottled dark red and orange; trace fine to coarse grained sand		w~PL	St	RESIDUAL SOIL
			PID=11.8	ES_1.60-1.80	3.0								
						2.0							
					2.5								
						2.5							
					2.0								
						3.0			*BH33A terminated at 3.00 m.* *Target depth*				
					1.5								
						3.5							
					1.0								
						4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **BH35/GW35**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	21/03/2024
Location:	Pacific Highway Shoulder (7 Eleven), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353733.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6317177.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data										Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U									FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	w>PL		ROAD SURFACE
				PID=7.3	ES_0.30-0.40		0.5			FILL: sandy CLAY: low plasticity; brown; sand is fine to coarse grained, with gravel, fine to medium, sub-angular, igneous			FILL
HA	U		10/4/24	PID=8	DS_0.50-1.00 ES_0.80-0.90	4.0	1.0			FILL: CLAY: low to medium plasticity; dark brown; trace fine grained sand	M		
				SPT:3,3,5 N=8	N*_1.00-1.45		1.5		CI-CL	CLAY: low to medium plasticity; brown; with fine grained sand	w>PL	F- St	ALLUVIAL SOIL
AD/T	U			PID=4.4	ES_1.70-1.80	3.0	2.0						
					DS_1.45-2.50		2.5		CI	CLAY: medium plasticity; pale grey to grey; with fine grained sand			
			21/3/24	SPT:3,3,6 N=9 PID=2	N*_2.50-2.95	2.0	3.0						
					DS_2.95-4.00	1.0	3.5						
				PP=300, 450, 600 kPa SPT:4,7,12 N=19	N*_4.00-4.45		4.0				w<PL		
							4.5		CH	CLAY: high plasticity; yellow-brown mottled pale grey		VSt	
						0.0				*BH35/GW35 terminated at 4.45 m.* *Target depth. Standpipe Piezometer Installed.*			
							5.0						
						-1.0	5.5						
							6.0						
							6.5						
						-2.0	7.0						
							7.5						
						-3.0	8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH39**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	17/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	17/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353274.8 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315671.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	7.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U						0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 200 mm thick				ROAD SURFACE
							0.5			FILL: CONCRETE: pale grey; aggregates up to 10 mm, 200 mm thick				CONCRETE BASE
HA	U			PID=4.7	ES_0.60-0.70	7.0	1.0			FILL: sandy CLAY: medium plasticity; yellow-brown; sand is fine to medium grained, trace fine igneous gravel		w<PL		FILL
				PID=13.8	DS_1.00-1.50 ES_1.20-1.30		1.5		CH	silty CLAY: high plasticity; red-brown and grey		w<PL	VSt	RESIDUAL SOIL
AD/T	U		NOT ENCOUNTERED	PP=450, 600, 600 kPa SPT:5,7,9 N=16	N*_1.50-1.95	6.0	2.0							
					DS_2.00-2.50		2.5							
				PP=300, 600, 550 kPa SPT:3,9,13 N=22	N*_2.50-2.85	5.0	3.0							
							3.5							
						4.0	4.0			CLAYSTONE: dark red-brown; extremely weathered, soil strength		D	H	
				SPT:25/40mm N=R						*BH39 terminated at 4.04 m.* *Refusal. Standpipe Piezometer Installed.*				
						3.0	4.5							
							5.0							
							5.5							
						2.0	6.0							
							6.5							
						1.0	7.0							
							7.5							
						0.0	8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH40**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	15/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	15/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353303.1 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315893.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.6 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED			13.5	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 70 mm thick			ROAD SURFACE
HA	U		PID=3.9	ES_0.07-0.47					FILL: sandy GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous; sand is fine to coarse grained, trace silt, weak petroleum odour	D		PAVEMENT MATERIAL
			PID=1.6	ES_0.47-0.52		0.5			FILL: SAND: fine to medium grained; pale brown; with gravel, fine to medium, sub-angular, igneous, trace clay			
			PID=3.9	ES_0.60-0.80	13.0			CI	sandy CLAY: medium plasticity; pale brown; sand is fine to medium grained	w~PL	St	RESIDUAL SOIL
						1.0		CI	sandy CLAY: medium plasticity; pale brown-grey; sand is fine to medium grained			
			PID=0.6	ES_1.20-1.40	12.5							
						1.5		CI	CLAY: medium plasticity; pale grey and red-brown; with sand, fine to medium grained, trace fine to medium ironstone gravel		VSt	
AD/T	U		PP=350, 450, 200 kPa SPT:5,10,13 N=23 PID=4.5	ES_1.50-1.95	12.0							
			PID=0.2	ES_2.20-2.40	11.5	2.0						
						2.5		CH	CLAY: high plasticity; red-brown; trace fine gravel		H	
			PP=430, 470 kPa SPT:10,21,22 N=43 PID=0.6	ES_3.00-3.45	11.0							
					10.5	3.0						
					10.0	3.5			*BH40 terminated at 3.45 m.* *Target depth*			
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH41**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	11/03/2024
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353286.3 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315901.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	14.3 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				14.0	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 70 mm thick				ROAD SURFACE
									FILL: sandy GRAVEL: fine to medium; dark grey; angular to sub-angular; sand is fine to coarse grained, trace silt		D		PAVEMENT MATERIAL
				ES_0.40-0.50		0.5							
			PID=10.3	ES_0.60-0.70					FILL: clayey SAND: fine grained; brown-grey; trace fine to medium gravel		M		FILL
			PID=13.2	ES_0.80-1.00	13.5	1.0							
HA	U	NOT ENCOUNTERED						SC	clayey SAND: fine grained; orange-brown		M	MD	RESIDUAL SOIL
			PID=11.2	ES_1.20-1.30	13.0								
						1.5		CL	silty CLAY: low plasticity; orange-brown; trace fine grained sand		w~PL	St	
					12.5	2.0							
								CH	CLAY: high plasticity; pale grey mottled brown		w<PL	VSt	
			PID=10.1	ES_2.10-2.20									
					12.0	2.5							
					11.5	3.0			*BH41 terminated at 2.77 m.* *Hand auger refusal*				
					11.0	3.5							
					10.5	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH42**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	11/03/2024
Location:	Howarth Street, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353444.9 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6316026.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT							0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 100 mm thick			CARPARK SURFACE
				PID=13	ES_0.20-0.40					FILL: sandy CLAY: low to medium plasticity; dark brown; sand is fine to coarse grained, trace asphalt fragments	w<PL		FILL
				PID=16.6	ES_0.50-0.60		0.5				M		
						8.0				FILL: sandy CLAY: low plasticity; dark brown-grey; sand is fine to coarse grained, with gravel, fine, angular to sub-rounded, igneous			
				PID=19	ES_0.90-1.00		1.0		CH-CI	FILL: clayey SAND: fine grained; dark grey; with gravel, fine, sub-angular to sub-rounded, igneous	w~PL	S- F	ALLUVIAL SOIL
				PID=9.1	ES_1.20-1.40					sandy CLAY: medium to high plasticity; pale grey mottled pale brown; with sand, fine grained			
				SPT:0,0,3 N=3 PP=40, 50, 60 kPa	N*_1.50-1.95	7.0	1.5						
				PID=7.2	ES_2.20-2.30		2.0						
AD/T			10/4/24		U75_2.50-3.00	6.0	2.5		CH	CLAY: high plasticity; brown-grey mottled red	w~PL	St	RESIDUAL SOIL
	U			PID=16.1	ES_3.00-3.10		3.0						
				SPT:4,4,7 N=11 PP=340, 380, 260 kPa	N*_3.10-3.45		3.5						
						5.0						St-VSt	
				SPT:4,6,9 N=15 PP=300, 300, 450 kPa	N*_4.00-4.45		4.0						
						4.0	4.5						
							5.0		CH	CLAY: high plasticity; grey mottled yellow-brown	w<PL	VSt	
					DS_5.40-5.50		5.5						
				SPT:6,10,15 N=25 PP=550, 570 kPa	N*_5.50-5.95	3.0	6.0						
							6.5			*BH42 terminated at 6.00 m.* *Target depth. Standpipe Piezometer Installed.*			
						2.0	7.0						
							7.5						
						1.0	8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. BH46**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	15/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	15/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353324.7 m	**RL:**	13.5 m
Drill Rig:	Comacchio Geo 205	**Northing:**	6315919.9 m	**Ver. Datum:**	m AHD
Hole Diameter:	125 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Inclination:	-90°				
Bearing:	N/A				

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				13.5				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick	D		ROAD SURFACE
									FILL: clayey GRAVEL: fine to medium; dark grey; angular to sub-angular; with sand, fine to medium grained, strong organic odour			PAVEMENT MATERIAL
			PID=2.4 PID=3.1	ES_0.04-0.60								
					13.0	0.5						
HA	U		PID=4.1	ES_0.60-0.80				CH-CI	CLAY: medium to high plasticity; pale brown to pale yellow-brown mottled red-brown	w>PL	St	RESIDUAL SOIL
						1.0						
					12.5			CH-CI	sandy CLAY: medium to high plasticity; pale brown and pale grey; sand is fine to medium grained; with gravel, fine to medium, angular to sub-angular, ironstone		St-VSt	
			PID=3.7	ES_1.10-1.30								
						1.5						
		NOT ENCOUNTERED	PP=190, 230 kPa SPT:4,6,9 N=15	N*_1.50-1.95	12.0			CI	CLAY: medium plasticity; pale grey and red-brown mottled yellow-brown; with gravel, fine, angular, ironstone			
						2.0						
AD/T	U		PID=3.2	ES_2.20-2.40	11.5			CI	CLAY: medium plasticity; red-brown and brown	w~PL	VSt-H	
						2.5						
			PID=3.6	ES_2.50-2.70	11.0							
						3.0						
			PP=170, 540 kPa SPT:14,24,21 N=45	N*_3.00-3.45	10.5			CI	sandy CLAY: medium plasticity; pale grey; sand is fine grained	w<PL	H	
						3.5			*BH46 terminated at 3.45 m.* *Target depth*			
					10.0							
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH01A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	07/03/2024
Location:	Wyong River	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353226.9 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315372.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	-5.0 m
				Ver. Datum:	m AHD
				Surface:	Water

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U			N*_0.00-0.45 U75_0.00-0.45				CI	sandy CLAY: medium plasticity; grey; sand is fine to medium grained		w>PL	S	ALLUVIAL SOIL
				U75_0.45-0.90	-5.5	0.5		SC	clayey SAND: fine to medium grained; grey; trace fine gravel		W	L	
			SPT:2,2,6 N=8	N*_0.90-1.25	-6.0	1.0							
					-6.5	1.5							
			SPT:0,0,0 N=0		-7.0	2.0							
					-7.5	2.5			*R-BH01A terminated at 2.20 m.* *Target depth*				
					-8.0	3.0							
					-8.5	3.5							
					-9.0	4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH05**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	12/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	12/03/2024
Location:	Wyong River	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353229.1 m	**RL:**	-3.3 m
Drill Rig:	Comacchio Geo 305	**Northing:**	6315421.5 m	**Ver. Datum:**	m AHD
Hole Diameter:	96 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Water
Inclination:	-90°				
Bearing:	N/A				

Field Data							Material Description		Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U			DS_0.00-0.20		0.0			TREE STUMP: dark brown			ALLUVIAL SOIL
				N*_0.40-0.46		0.5						
			SPT:1,0,1 N=1	N*_0.50-1.04	-4.0	1.0		SP	SAND: fine to medium grained; dark grey; trace clay	W	VL	
			SPT:20/16mm N=R						at 1.00 m: with gravel, fine to medium			
				N*_1.02-1.25		1.5						
			SPT:1,1,1 N=2		-5.0	2.0						
			SPT:10,14,11 N=25	N*_2.28-2.45		2.5			from 2.25 m: with clay at 2.43 m: trace wood fragments			possible tree stump
					-6.0	3.0						
			SPT:22/140mm N=R	N*_3.51-3.64		3.5						
									SANDSTONE: fine to medium grained; yellow-brown; highly weathered, very low strength			PATONGA CLAYSTONE
						4.0			*Borehole R-BH05 log continued as cored log from 3.64 m.*			
						4.5						
						5.0						
						5.5						
						6.0						
						6.5						
						7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH07**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/02/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	01/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353210.5 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315327.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.15	4.0	0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 10 mm thick	D		ROAD SURFACE
							0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 50 mm thick	w<PL		PAVEMENT MATERIAL
NDD	U					3.0	1.0			FILL: clayey GRAVEL: fine to coarse; dark grey; angular to sub-angular; igneous	w<PL		FILL
										FILL: gravelly CLAY: low plasticity; red-brown; gravel is fine to medium, sub-angular, igneous, with sand, fine to coarse grained			
							1.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 50 mm thick			
				PID=43.9 SPT:1,5,7 N=12	N*_1.50-1.80					FILL: sandy CLAY: low plasticity; brown to dark brown; sand is medium to coarse grained, with gravel, fine to medium, sub-angular, igneous			
				PID=13.2	N*_1.80-1.95	2.0	2.0		SP	SAND: fine to medium grained; yellow-brown; trace fine to medium gravel	M	MD	ALLUVIAL SOIL
							2.5						
							3.0						
				SPT:2,3,3 N=6 PID=13.7	N*_3.00-3.45	1.0						L	
			20/3/24				3.5			from 3.25 m, becoming grey to dark grey			
AD/T	U						4.0						
						0.0			SM	silty SAND: fine to coarse grained; dark brown to pale grey	W		
							4.5						
				SPT:3,3,5 N=8 PID=7.3	N*_4.50-4.95					from 4.70 m to 4.95 m: dark grey			
			29/2/24			-1.0	5.0						
							5.5						
							6.0			from 6.00 m: trace fine to coarse gravel			
				SPT:2,3,4 N=7 PID=4.5	N*_6.00-6.45	-2.0							
							6.5		SP	SAND: medium to coarse grained; grey to pale grey			
WB	U						7.0			at 7.00 m: gravel band up to 20 mm, sub-rounded			
				SPT:5,4,5 N=9	N*_7.00-7.45	-3.0							
							7.5			from 7.30 m, becoming dark grey			
							8.0						

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/02/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	01/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353210.5 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315327.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
						-4.0	8.5		SP	SAND: medium to coarse grained; grey to pale grey *(continued)*	W	L	ALLUVIAL SOIL *(continued)*
				SPT:5,5,6 N=11	N*_8.50-8.95							MD	
						-5.0	9.0						
							9.5		CI	CLAY: medium plasticity; brown-grey; with sand, fine grained	w>PL	VS	
				SPT:0,0,0 N=0 PP=10, 20, 20 kPa	N*_10.00-10.20	-6.0	10.0						SPT at 10.00 m, fell under self weight
					N*_10.20-10.60		10.5						
							11.0		SM	silty SAND: fine to medium grained; pale brown; trace clay			
					U63_11.00-11.50	-7.0	11.5				M	MD	
				SPT:6,7,10 N=17	N*_11.50-11.70								
					N*_11.70-11.95		12.0						
						-8.0	12.5						
							13.0		CI	CLAY: medium plasticity; pale grey mottled orange-brown and dark grey	w<PL	VSt	
				SPT:9,10,14 N=24 PP=100, 190, 180 kPa	N*_13.00-13.30	-9.0	13.5						
					N*_13.30-13.45		14.0						
						-10.0	14.5		CL	sandy CLAY: low plasticity; pale brown; sand is fine grained		St	
				SPT:3,4,5 N=9	N*_14.50-14.70								
					N*_14.70-14.95		15.0		CH	silty CLAY: high plasticity; pale brown; with sand, fine grained			
						-11.0	15.5						
							16.0						

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/02/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	01/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353210.5 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315327.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U			SPT:5,5,8 N=13 PP=110, 120, 290 kPa	DS_16.00-16.45	-12.0	16.5		CH	silty CLAY: high plasticity; pale brown; with sand, fine grained *(continued)*	w>PL	St	ALLUVIAL SOIL *(continued)*
					N*_16.00-16.20							
					N*_16.20-16.45	-13.0	17.0					
					N*_17.50-17.70		17.5					
				SPT:16,16,20 N=36	N*_17.70-17.95				SP	SAND: fine grained; pale brown; with clay	M	D	
						-14.0	18.0					
							18.5					
							19.0					
				SPT:16,50/150mm N=R	N*_19.00-19.30	-15.0			SP	SAND: medium to coarse grained; pale brown-grey		VD	
							19.5		SC	clayey SAND: fine grained; yellow-brown			
						-16.0	20.0						
				SPT:28,10/25mm N=R	CS_20.18-20.81		20.5		CH	CLAY: high plasticity; grey mottled pale brown; with sand, medium grained	w>PL	H	RESIDUAL SOIL
				PP=>600 kPa	N*_20.50-20.68					*Borehole R-BH07 log continued as cored log from 20.68 m.*			
							21.0						
							21.5						
							22.0						
							22.5						
							23.0						
							23.5						
							24.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH08**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353234.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315319.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.5 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U			PID=8.2	ES_0.00-0.10		0.0			TOPSOIL: sandy CLAY: low plasticity; dark brown; trace fine gravel		M		TOPSOIL
DT	U						0.2			FILL: CONCRETE: grey; aggregates up to 20 mm, 300 mm thick				FILL
					DS_0.40-1.00	3.0	0.5			FILL: CLAY: low to medium plasticity; dark brown; trace fine grained sand		w<PL		
HA	U			SPT:7,11,12 N=23 PP=100, 150, 600 kPa	N*_1.00-1.45		1.0							
						2.0	1.5							
					DS_2.00-2.50		2.0		SM	silty SAND: fine to medium grained; grey		W	VL-L	ALLUVIAL SOIL
			11/4/24			1.0	2.5							
AD/T	U		18/3/24	SPT:3,3,1 N=4	N*_2.50-2.79		3.0							
						0.0	3.5							
				SPT:2,2,3 N=5	N*_4.00-4.45		4.0							
						-1.0	4.5							
							5.0							
				SPT:3,3,2 N=5	N*_5.30-5.75	-2.0	5.5							
WB	U						6.0							
						-3.0	6.5							
				SPT:2,1,2 N=3 PP=10, 100, 100 kPa	N*_6.80-7.20		7.0		CL	sandy CLAY: low plasticity; dark grey; sand is fine grained		w<PL	S	
						-4.0	7.5							
					U75_7.80-8.25		8.0							

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353234.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315319.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.5 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
					U75_7.80-8.25				CL	sandy CLAY: low plasticity; dark grey; sand is fine grained *(continued)*	w<PL	S	ALLUVIAL SOIL *(continued)*
WB	U			SPT:3,5,2 N=7	N*_8.30-8.75	-5.0	8.5		SC	clayey SAND: fine to medium grained; grey; sand is fine to medium grained	W	L	
							9.0			from 9.00 m: medium to coarse grained			
						-6.0	9.5						
				SPT:4,3,5 N=8	N*_9.80-10.25		10.0						
				SPT:3,3,2 N=5 PP=100, 200, 150 kPa	N*_10.30-10.75	-7.0	10.5		CL	sandy CLAY: low plasticity; dark grey; sand is fine to medium grained	w>PL	F	
							11.0						
						-8.0	11.5						U75 attempted, no recovery
				SPT:3,3,3 N=6 PP=90, 70, 120 kPa	N*_11.80-12.25		12.0						
						-9.0	12.5						
							13.0						
				SPT:2,3,4 N=7 PP=5, 10, 50 kPa	N*_13.30-13.75	-10.0	13.5						
							14.0						
						-11.0	14.5						
				SPT:3,4,5 N=9 PP=70, 110 kPa	N*_14.80-15.25		15.0				w<PL	St	
						-12.0	15.5						
							16.0						

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2020_ANZ_GEO_BOREHOLE WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353234.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315319.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.5 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U			SPT:4,20/140mm N=R PP=450 kPa	DS_16.30-16.59	-13.0	16.5		CL	sandy CLAY: low plasticity; dark grey; sand is fine to medium grained *(continued)*	w<PL	St	ALLUVIAL SOIL *(continued)*
										SANDSTONE: fine to medium grained; pale grey; iron stained *Borehole R-BH08 log continued as cored log from 16.59 m.*			

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH08A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	21/03/2024
Location:	Pacific Highway, High Grass Verge	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353233.8 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	90°	**Northing:**	6315322.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.2 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED		ES_0.00-0.10	3.5	0.5			TOPSOIL: sandy CLAY: low plasticity; dark brown; with gravel, fine, sub-angular, igneous		w<PL		TOPSOIL
DT	U								FILL: CONCRETE: grey; aggregates up to 20 mm, 300 mm thick				FILL
HA	U			ES_0.90-1.00	4.0	1.0			FILL: CLAY: low to medium plasticity; dark brown; trace fine grained sand		M		
AD/T	U			ES_1.90-2.00	4.5	1.5							
					5.0	2.0							
					5.5	2.5							
									R-BH08A terminated at 2.50 m. Target depth				
					6.0	3.0							
					6.5	3.5							
						4.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH09**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	06/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH/KH	**End Date:**	06/03/2024
Location:	Panonia Rd, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353234.0 m
		Inclination:	-90°	**Northing:**	6315454.6 m
Drill Rig:	Comacchio Geo 305	**Bearing:**	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	3.0 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U						0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 40 mm thick	D		ROAD SURFACE
										FILL: gravelly SAND: fine to coarse grained; pale orange to orange; gravel is fine to medium, sub-angular, igneous	D		PAVEMENT MATERIAL FILL
HA	U				ES_0.60-0.70		0.5			FILL: gravelly SAND: fine to coarse grained; brown-grey; gravel is fine to coarse, angular to sub-rounded, igneous	w<PL		
						2.0	1.0			FILL: sandy CLAY: medium plasticity; brown; sand is fine to coarse grained, trace fine to medium gravel, sub-rounded to sub-angular, trace roots and rootlets			
							1.5						
AD/T	U			SPT:6,6,5 N=11	N*_1.50-1.95		2.0		SP	SAND: fine to medium grained; orange-brown to brown; with silt	D	MD	ALLUVIAL SOIL
						1.0							
					DS_2.10-2.30								
				PID=13.1	ES_2.30-2.50		2.5						
			20/3/24	SPT:10/70 N=R	N*_2.50-2.57				CI	sandy CLAY: medium plasticity; orange-brown mottled grey; sand is fine to medium grained	w<PL	H	RESIDUAL SOIL
				PID=15.7	ES_2.50-2.60					*Borehole R-BH09 log continued as cored log from 2.60 m.*			
							3.0						
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH10**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	02/04/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	02/04/2024
Location:	Pacific Highway Verge (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353254.6 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315448.2 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.2 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U			DS_0.50-0.70	5.0	0.5			TOPSOIL: clayey SAND: fine grained; dark brown; with rootlets	D		TOPSOIL
									FILL: silty CLAY: medium plasticity; pale grey mottled red-brown; with sand, fine to coarse grained from 0.60 m: becoming red-brown	w~PL		FILL
AD/T	U		SPT:4,5,8 N=13 PP=380, 440, 350 kPa	N*_1.00-1.45	4.0	1.0 1.5						
						2.0			FILL: sandy CLAY: low to medium plasticity; dark brown; sand is fine to medium grained	w<PL		
			PP=170, 400, 420, 530, 420 kPa PID=2.6 SPT:2,4,7 N=11	N*_2.50-2.95	3.0	2.5						
						3.0		CI	silty sandy CLAY: medium plasticity; pale grey mottled orange-brown; sand is fine to medium grained	w<PL	VSt	RESIDUAL SOIL
					2.0	3.5						
			PP=390, 590 kPa SPT:8,12,18 N=30	N*_3.50-3.91		4.0						
		10/4/24			1.0	4.5			SANDSTONE: fine to medium grained; pale brown; extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
									Borehole R-BH10 log continued as cored log from 4.54 m.			
						5.0						
						5.5						
						6.0						
						6.5						
						7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH10A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	03/04/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	03/04/2024
Location:	Pacific Highway Verge (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353254.0 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315448.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.2 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=1.8	ES_0.10-0.20	5.0	0.5			TOPSOIL: clayey SAND: fine grained; dark brown; with rootlets	M		TOPSOIL
			PID=3.9	ES_0.40-0.50					FILL: silty CLAY: medium plasticity; pale grey mottled red-brown; with sand, fine to coarse grained	w~PL		FILL
				ES_0.50-0.70								
			PID=1.9	ES_0.70-0.80		1.0			from 0.60 m: becoming red-brown			
AD/T	U		SPT:4,5,8 N=13 PP=380, 440, 350 kPa	N*_1.00-1.20	4.0							
				N*_1.20-1.45		1.5						
			PID=5.6	ES_1.70-1.80		2.0			FILL: sandy CLAY: low to medium plasticity; dark brown; sand is fine to medium grained	w<PL		
			PP=170, 400, 420, 530, 420 kPa PID=2.6 SPT:2,4,7 N=11	N*_2.50-2.80	3.0	2.5						
				N*_2.80-2.95				CI	silty sandy CLAY: medium plasticity; pale grey mottled orange-brown; sand is fine to medium grained	w<PL	VSt	RESIDUAL SOIL
			PP=390, 590 kPa SPT:8,12,18/110mm/DB N=R	N*_3.50-3.91	2.0	3.5						
					1.0	4.0			SANDSTONE: fine to medium grained; pale brown; extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
						4.5			*R-BH10A terminated at 4.50 m.* *Target depth*			
					0.0	5.0						
						5.5						
					-1.0	6.0						
						6.5						
					-2.0	7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH13**

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/02/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	27/02/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353300.7 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315307.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	3.1 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U			ES_0.00-0.10	3.0	0.5			FILL: clayey SAND: fine to medium grained; brown; trace fine igneous gravel		M		FILL
				DS_0.10-0.50				SC	clayey SAND: fine to medium grained; pale yellow-brown		M	MD	ALLUVIAL SOIL
				ES_0.80-0.90		1.0							
				ES_1.00-1.20	2.0								
				DS_1.20-1.30									
				ES_1.40-1.50		1.5			from 1.50 m: pale brown to brown				
AD/T	U		SPT:6,8,11 N=19	N*_1.50-1.95									
					1.0	2.0							
						2.5			from 2.60 m: orange-brown				
				DS_2.80-3.00		3.0		SM	silty SAND: fine grained; dark brown to purple-brown; with clay			L-MD	
			SPT:5,4,6 N=10	N*_3.00-3.15	0.0								
				N*_3.15-3.45		3.5							
				DS_3.70-3.90									
					-1.0	4.0							
			PP=90, 100, 160 kPa SPT:3,4,6 N=10	N*_4.50-4.65		4.5							
				N*_4.65-4.95				CI	sandy CLAY: medium plasticity; red-brown; sand is fine grained		w~PL	St	
					-2.0	5.0							
						5.5		ML	sandy SILT: low plasticity; pale grey to grey; sand is fine grained from 5.80 m, becoming pale brown to brown		w>PL	S	
		▽ 28/2/24		DS_5.80-6.00		6.0							
			SPT:1,0,3 N=3	N*_6.00-6.45	-3.0								
						6.5							
					-4.0	7.0							
				DS_7.30-7.50		7.5							
				U63_7.60-8.00		8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH13**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/02/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	27/02/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353300.7 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315307.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	3.1 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U		SPT:3,5,6 N=11	N*_8.00-8.20	-5.0			ML		w>PL	S	ALLUVIAL SOIL *(continued)*
				N*_8.20-8.45				SP	SAND: medium to coarse grained; yellow-brown	W	L-MD	
					-8.5	8.5			*R-BH13 terminated at 8.45 m. Target depth*			
					-6.0	9.0						
						9.5						
					-7.0	10.0						
						10.5						
					-8.0	11.0						
						11.5						
					-9.0	12.0						
						12.5						
					-10.0	13.0						
						13.5						
					-11.0	14.0						
						14.5						
					-12.0	15.0						
						15.5						
						16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH13A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/02/2024
Project:	Wyong Town Centre	**Logged by:**	FR	**End Date:**	27/02/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353288.0 m
Drill Rig:	Geoprobe 7822DT	**Inclination:**	-90°	**Northing:**	6315312.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	2.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
					2.5				FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 10 mm thick	M		ROAD SURFACE
									FILL: clayey SAND: fine to medium grained; pale red-brown; trace fine igneous gravel			PAVEMENT MATERIAL
AD/T	U	NOT ENCOUNTERED				0.5		SC	clayey SAND: fine to medium grained; pale yellow-brown	M	MD	ALLUVIAL SOIL
				ES_0.60-0.70	2.0							
						1.0						
					1.5							
				ES_1.30-1.40								
				ES_1.40-1.50		1.5						
									R-BH13A terminated at 1.50 m. *Target depth*			
					1.0							
						2.0						
					0.5							
						2.5						
					0.0							
						3.0						
					-0.5							
						3.5						
					-1.0							
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH16**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/11/2023
Project:	Wyong Town Centre	**Logged by:**	DA/AA	**End Date:**	29/11/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353278.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315547.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.0 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U	NOT OBSERVED	PID=3.9	ES_0.10-0.20	7.0	0.5			FILL: gravelly CLAY: high plasticity; dark brown; gravel is fine to coarse, angular to sub-angular, igneous and claystone, trace rootlets		w<PL		FILL
						1.0							
			PID=5.7	ES_1.50-1.60		1.5			FILL: CLAY: high plasticity; red-grey; with gravel, fine, sub-rounded, igneous and claystone, trace fine grained sand				
AD/T	U		SPT:3,10,12 N=22	N*_1.60-1.95	6.0	2.0		CH	CLAY: high plasticity; grey mottled red-orange; with sand, fine grained, trace fine gravel		w<PL	VSt	RESIDUAL SOIL
						2.5							
			PP=390 kPa SPT:6,9,15 N=24	N*_3.00-3.45	5.0	3.0							
						3.5							
				DS_3.50-4.50	4.0	4.0							
			PP=>400 kPa SPT:6,9,11 N=20	N*_4.50-4.95		4.5		CH	CLAY: high plasticity; grey mottled dark red; with sand, fine grained			VSt-H	
					3.0	5.0							
						5.5							
			SPT:20/100mm N=R						SANDSTONE: fine grained; pale yellow-brown; highly weathered, very low strength		D	H	PATONGA CLAYSTONE
						6.0			*Borehole R-BH16 log continued as cored log from 5.70 m.*				
						6.5							
						7.0							
						7.5							
						8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH16A**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	22/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	22/03/2024
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353279.5 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315549.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	8.1 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U			ES_0.00-0.20	8.0				FILL: silty SAND: fine grained; pale brown; with gravel, fine to coarse, sub-rounded to sub-angular, trace rootlets	D		FILL
AD/T	U	NOT OBSERVED	PID=5	ES_0.40-0.60	7.5	0.5			from 0.30 m: becoming dark orange-brown from 0.50 m: becoming brown			
			PID=5 PID=2.3	ES_0.90-0.10	7.0	1.0						
			PID=3.1	ES_1.30-1.50		1.5			from 1.40 m: becoming red-brown to brown at 1.45 m: glass fragment			
					6.5				*R-BH16A terminated at 1.50 m.* *Target depth*			
						2.0						
					6.0							
						2.5						
					5.5							
						3.0						
					5.0							
						3.5						
					4.5							
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH18**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	28/11/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	28/11/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353284.4 m
Drill Rig:	Comacchio MC 450P	**Inclination:**	-90°	**Northing:**	6315653.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.8 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U	NOT OBSERVED			8.0	0.5			FILL: clayey GRAVEL: fine to coarse; dark brown; angular to sub-angular; igneous and claystone, trace rootlets at 0.20 m: steel railway pin	M		FILL
						1.0			FILL: gravelly CLAY: medium plasticity; brown; gravel is fine to medium, angular to sub-angular, igneous and claystone at 0.90 m: root, 10 mm diameter	w<PL		
AD/T	U		PP=>400 kPa SPT:4,4,7 N=11	N*_1.50-1.95	7.0	1.5		CH	silty CLAY: high plasticity; red-brown mottled pale grey	w~PL	VSt	RESIDUAL SOIL
						2.0						
					6.0	2.5						
			SPT:5,21,15/90mm N=R PP=>400 kPa	N*_3.00-3.39		3.0			CLAYSTONE: dark red-brown; with sandstone bands, fine grained, pale grey, extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
						3.5			*Borehole R-BH18 log continued as cored log from 3.44 m.*			
						4.0						
						4.5						
						5.0						
						5.5						
						6.0						
						6.5						
						7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH19**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	28/11/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	28/11/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353293.3 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315704.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	10.0 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U			PID=1.2	ES_0.10-0.20		0.5			FILL: clayey GRAVEL: fine to coarse; dark brown; angular to sub-angular; igneous and claystone at 0.20 m: concrete fragment, 200 mm thick	M		FILL
				SPT:8,16,24 N=40	N*_1.00-1.35	9.0	1.0			CLAYSTONE: dark red-brown; with sandstone bands, fine grained, pale grey, extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
				PID=10.1	ES_1.50-1.60		1.5						
						8.0	2.0						
				SPT:17,15/70mm N=R	N*_2.50-2.80		2.5						
						7.0	3.0			*Borehole R-BH19 log continued as cored log from 3.14 m.*			
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH20B**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	30/11/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	30/11/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Smartscan Locators	**Easting:**	353299.3 m	**RL:**	11.2 m
Drill Rig:	Vac-truck 8000L	**Northing:**	6315749.9 m	**Ver. Datum:**	m AHD
Hole Diameter:	200 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Fill
Inclination:	-90°				
Bearing:	N/A				

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log / Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U	NOT ENCOUNTERED	PID=7.8	ES_0.10-0.20	11.0	0.5		FILL: sandy GRAVEL: fine to coarse; brown and dark grey; angular to sub-angular; igneous, claystone and concrete, sand is fine to coarse grained, trace rootlets	D		FILL
			PID=9.5	DS_0.10-1.00 ES_0.50-0.60	10.5	1.0					
					10.0	1.5		CLAYSTONE: dark red-brown; massive; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
			PID=5.6	DS_1.00-2.00 ES_1.50-1.60	9.5	2.0					
					9.0	2.5		*R-BH20B terminated at 2.00 m.* *Terminated due to services*			
					8.5	3.0					
					8.0	3.5					
					7.5	4.0					

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH23**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	KH/DA	**End Date:**	11/12/2023
Location:	1 Pacific Highway, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353313.8 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315833.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	12.1 m
				Ver. Datum:	m AHD
				Surface:	Concrete (slab)

Field Data									Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD DT	U U					12.0	0			FILL: CONCRETE: dark grey; aggregates up to 20 mm, 115 mm thick, with steel reinforcement, 9 mm diameter	D		CONCRETE SLAB
							0.5			FILL: gravelly SAND: medium to coarse grained; dark brown-grey; gravel is fine to medium, with silt			FILL
							1.0			FILL: COBBLES: grey; sub-angular; 60-100 mm, igneous			
AD/T	U				DS_1.40-1.50	11.0	1.5		CH	silty CLAY: high plasticity; brown; with sand, fine to medium grained	w<PL	VSt	RESIDUAL SOIL
				PP=220, 290, 170 kPa SPT:5,9,15 N=24	N*_1.50-1.95					from 1.55 m, becoming grey mottled red-brown			
						10.0	2.5		CH-CI	sandy CLAY: medium to high plasticity; yellow-brown; sand is fine grained, with fine gravel, sub-rounded to sub-angular		VSt-H	
					DS_2.70-3.00		3.0						
				SPT:12,26,3/60mm N=R PP=>600 kPa	N*_3.00-3.15	9.0				CLAYSTONE: dark red-brown mottled pale grey; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
					N*_3.15-3.36					*Borehole R-BH23 log continued as cored log from 3.36 m.*			
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH26**

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	04/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	04/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353395.3 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316158.2 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.6 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description	Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U					13.0	0.5			FILL: clayey gravelly SAND: fine to coarse grained; dark brown; gravel is fine to medium, angular, igneous, trace rootlets	D		FILL
											D		PATONGA CLAYSTONE
										SANDSTONE: fine grained; pale orange-brown; extremely weathered, soil strength, with quartz and claystone inclusions, fine to coarse gravel size, rounded			
AD/T	U						1.0				M	D-VD	
				SPT:13,15,14 N=29	N*_1.50-1.95	12.0	1.5						
							2.0						
							2.5			CLAYSTONE: dark red-brown; highly weathered, very low strength	D	H	
						11.0							
				SPT:15,31,5/0mm N=R	N*_3.00-3.30		3.0						
										Borehole R-BH26 log continued as cored log from 3.30 m.			
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH26A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	GB	**End Date:**	08/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353394.2 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316158.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U	NOT ENCOUNTERED	PID=4.1	ES_0.10-0.20	13.5	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 60 mm thick	D		ROAD SURFACE
									FILL: gravelly SAND: fine to coarse grained; dark brown-grey; gravel is fine, angular, igneous, slight aromatic odour			PAVEMENT MATERIAL
			PID=7.8	ES_0.40-0.50		0.5			SANDSTONE: fine to medium grained; pale red-orange; extremely weathered, soil strength	M	D	PATONGA CLAYSTONE
				DS_0.40-0.80	13.0							
			PID=14.9	ES_0.90-1.00		1.0						
					12.5							
			PID=8.7	ES_1.40-1.50		1.5			*R-BH26A terminated at 1.50 m.* *Target depth*			
					12.0							
						2.0						
					11.5							
						2.5						
					11.0							
						3.0						
					10.5							
						3.5						
					10.0							
						4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH27**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	04/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	04/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353387.4 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316127.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U					0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 8 mm, 40 mm thick	D		ROAD SURFACE
NDD	U	NOT OBSERVED				0.5			FILL: sandy GRAVEL: fine to medium; dark grey and brown; angular; igneous, sand is fine to coarse grained	D		PAVEMENT MATERIAL FILL
					13.0				FILL: sandy GRAVEL: fine to coarse; brown-grey and green; sub-rounded to sub-angular; sandstone and alluvial, sand is fine to coarse grained	M	H	PATONGA CLAYSTONE
AD/T	U					1.0			SANDSTONE: fine grained; pale green-grey mottled red; extremely weathered, soil to very low strength	D		
			SPT:10/30mm N=R			1.5			*Borehole R-BH27 log continued as cored log from 1.50 m.*			
						2.0						
						2.5						
						3.0						
						3.5						
						4.0						
						4.5						
						5.0						
						5.5						
						6.0						
						6.5						
						7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH27A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	GB	**End Date:**	08/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353387.6 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316128.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U	8/12/23 ▽	PID=6.4	ES_0.05-0.15					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	D		ROAD SURFACE
									FILL: gravelly SAND: fine to coarse grained; dark brown-grey; gravel is fine, angular, igneous, weak petroleum odour			PAVEMENT MATERIAL
					13.5							FILL
			PID=9.3	ES_0.40-0.50		0.5		CI	FILL: gravelly SAND: fine to coarse grained; dark brown-grey; gravel is fine to medium, rounded to sub-rounded, igneous	w~PL	St	RESIDUAL SOIL
									sandy CLAY: medium plasticity; dark orange-brown; sand is fine to coarse grained, strong petroluem odour			
			PID=16.1	DS_0.60-0.80 ES_0.70-0.80								
					13.0				SANDSTONE; fine grained; pale orange-grey; extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
						1.0						possible perched water
									from 1.20 m: pale grey			
					12.5							
			PID=8	ES_1.40-1.50		1.5						
									R-BH27A terminated at 1.50 m. *Target depth*			
					12.0	2.0						
					11.5	2.5						
					11.0	3.0						
					10.5	3.5						
					10.0	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH28**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	07/03/2024
Location:	Rose Street Overbridge, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353430.7 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316134.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	15.7 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
NDD	U	NOT OBSERVED			15.0	0.5			TOPSOIL: silty sandy CLAY: medium plasticity; dark brown	w~PL		TOPSOIL
									FILL: gravelly SAND: fine to medium grained; brown; gravel is medium, sub-angular, igneous, with silt	M		FILL
						1.0			FILL: gravelly CLAY: medium plasticity; brown; gravel is medium to coarse, angular to sub-angular	w~PL		
				ES_1.50-1.60		1.5						
AD/T	U		SPT:3,1,3 N=4		14.0			CH	CLAY: high plasticity; red mottled grey	w>PL	F	RESIDUAL SOIL
				DS_1.50-2.50		2.0			from 2.00 m, becoming dark grey			
			SPT:2,4,6 N=10 PP=140, 100, 200 kPa	N*_2.50-2.95	13.0	2.5		CI	silty sandy CLAY: medium plasticity; brown-grey mottled red and yellow-brown; sand is fine to coarse grained, trace fine to medium gravel	w<PL	St	
				ES_2.95-3.00 DS_2.50-3.50		3.0						
					12.0	3.5		CI	silty CLAY: medium plasticity; red	w<PL	H	PATONGA CLAYSTONE
			SPT:17/40mm N=R			4.0			CLAYSTONE: dark red-brown; extremely weathered, soil strength	D		
									Borehole R-BH28 log continued as cored log from 4.14 m.			

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH28A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	19/03/2024
Location:	Rose Street Overbridge, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353431.1 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316135.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	15.8 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log / Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=7.5	ES_0.20-0.30	15.5	0.5		TOPSOIL: silty sandy CLAY: medium plasticity; dark brown	w<PL		TOPSOIL
			PID=8.1	DS_0.00-1.00 ES_0.50-0.60				FILL: gravelly SAND: fine to medium grained; brown; gravel is fine to coarse, sub-rounded to sub-angular	D		FILL
			PID=13.3	ES_0.80-0.90	15.0	1.0		FILL: clayey SAND: fine grained; orange-brown; with gravel, fine to medium, sub-rounded to sub-angular			
			PID=9.2	ES_1.10-1.20			CI	FILL: sandy CLAY: low to medium plasticity; pale orange-brown; with gravel, fine to medium, sub-rounded to sub-angular	w~PL		
								sandy CLAY: medium plasticity; brown-grey mottled red	w>PL	F	RESIDUAL SOIL
					14.5	1.5		*R-BH28A terminated at 1.20 m.* *Hand auger refusal*			
					14.0	2.0					
					13.5	2.5					
					13.0	3.0					
					12.5	3.5					
					12.0	4.0					

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH29**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	12/12/2023
Location:	North of Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353421.6 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6316127.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.8 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U				ES_0.00-0.20		0.0			TOPSOIL: silty sandy CLAY: medium plasticity; dark brown	M		TOPSOIL
					DS_0.20-0.50					FILL: clayey SAND: fine to medium grained; brown; trace fine to coarse igneous gravel	M		FILL
							0.5			from 0.50 m: with gravel			
					DS_0.60-1.00	13.0							
					ES_0.90-1.00		1.0						
					DS_1.00-1.30				CI	CLAY: medium plasticity; red-brown; with gravel, fine, sub-angular, ironstone	D	St	RESIDUAL SOIL
					DS_1.30-1.50		1.5			CLAYSTONE: dark red-brown mottled pale grey; extremely weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
AD/T	U		8/3/24	PP=100, 300, 400 kPa SPT:11,12,21 N=33	N*_1.50-1.95	12.0	2.0						
										Borehole R-BH29 log continued as cored log from 2.00 m.			
							2.5						
							3.0						
							3.5						
							4.0						
							4.5						
							5.0						
							5.5						
							6.0						
							6.5						
							7.0						
							7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH30**

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	12/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	12/12/2023
Location:	69 Howarth St, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353495.0 m	**RL:**	12.9 m
Drill Rig:	Comacchio Geo 405	**Northing:**	6316195.9 m	**Ver. Datum:**	m AHD
Hole Diameter:	96 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Grass
Inclination:	-90°				
Bearing:	N/A				

Field Data							Material Description		Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log / Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT OBSERVED	PID=7.3	ES_0.00-0.20		0		TOPSOIL: silty CLAY: low plasticity; pale brown	w<PL		TOPSOIL
								FILL: silty CLAY: low plasticity; pale brown; trace fine gravel			FILL
			PID=11.9	DS_0.00-1.00 ES_0.50-0.56		0.5	CH	CLAY: high plasticity; brown-grey mottled red	w~PL	St	RESIDUAL SOIL
AD/T	U				12.0	1.0		SANDSTONE: pale yellow-grey mottled brown; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
			SPT:12,25,5/10mm N=R	DS_1.00-2.00 N*_1.50-1.81		1.5					
					11.0	2.0		*Borehole R-BH30 log continued as cored log from 2.00 m.*			
						2.5					
						3.0					
						3.5					
						4.0					
						4.5					
						5.0					
						5.5					
						6.0					
						6.5					
						7.0					
						7.5					
						8.0					

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH34**

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA/JL	**End Date:**	06/12/2023
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Easting:**	353410.4 m	**RL:**	11.7 m
Drill Rig:	Comacchio Geo 405	**Northing:**	6316027.7 m	**Ver. Datum:**	m AHD
Hole Diameter:	96 mm	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Inclination:	-90°				
Bearing:	N/A				

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.10-0.20		0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	D		CARPARK SURFACE
													PAVEMENT MATERIAL
NDD	U				DS_0.10-1.00	11.0	0.5			FILL: gravelly SAND: fine to coarse grained; pale grey; gravel is fine to medium, angular, igneous, cement stabilised	w<PL		FILL
										FILL: sandy GRAVEL: fine to coarse; dark grey; sand is fine to coarse grained			
			20/3/2024		ES_1.00-1.20		1.0			FILL: CLAY: medium plasticity; dark red-brown mottled pale grey			
					DS_1.00-2.00		1.5			FILL: CLAY: medium plasticity; pale grey mottled green-grey; trace fine to medium gravel			
				PP=100, 140, 160 kPa SPT:5,2,3 N=5	N*_1.50-1.95	10.0	2.0		Cl	sandy CLAY: medium plasticity; brown-grey; sand is fine to medium grained, trace fine grained	w~PL	F	ALLUVIAL SOIL
					ES_2.00-2.20		2.5						
						9.0	3.0					VS	
				PP=240, 140, 80 kPa SPT:0,0,1 N=1	N*_3.00-3.30								
					DS_3.00-4.00	8.0	3.5						
							4.0		Cl	silty CLAY: medium plasticity; pale brown; with gravel, fine, angular, ironstone	w<PL	St-VSt	RESIDUAL SOIL
					ES_4.30-4.50		4.5						
AD/T	U			PP=170, 350, 350 kPa SPT:10,8,10 N=18	N*_4.50-4.95	7.0	5.0						
						6.0	5.5						
				SPT:10,12,9 N=21 PP=100, 300, 280 kPa	N*_6.00-6.45		6.0					VSt	
						5.0	6.5						
							7.0						
				PP=400, 100, 100 kPa SPT:9,8,15 N=23	N*_7.50-7.95	4.0	7.5						
							8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH34**

Sheet: 2 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA/JL	**End Date:**	06/12/2023
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	96 mm	**Easting:**	353410.4 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6316027.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	11.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
AD/T	U					3.0	8.5		CI	silty CLAY: medium plasticity; pale brown; with gravel, fine, angular, ironstone *(continued)*	w<PL	VSt	RESIDUAL SOIL *(continued)*
				SPT:12,18,22/140mm N=R	N*_9.00-9.44		9.0			CLAYSTONE: pale grey and dark red-brown; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
							9.5			*Borehole R-BH34 log continued as cored log from 9.44 m.*			
							10.0						
							10.5						
							11.0						
							11.5						
							12.0						
							12.5						
							13.0						
							13.5						
							14.0						
							14.5						
							15.0						
							15.5						
							16.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No. R-BH35**

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	21/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353174.8 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315264.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.3 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			ES_0.05-0.20	3.0	0.5		CL	FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 50 mm thick		w<PL	St	CARPARK SURFACE
HA	U			DS_0.40-0.50					sandy CLAY: low plasticity; orange-brown; with sand, fine to medium grained				ALLUVIAL SOIL
				DS_0.90-1.00		1.0							
				DS_1.40-1.50	2.0	1.5							
AD/T	U		SPT:5,5,5 N=10 PP=300, 500, 500 kPa	N*_1.50-1.95									
				ES_1.90-2.00		2.0							
				DS_2.00-2.10									
				DS_2.40-2.50	1.0	2.5							
				U75_2.50-2.95									
		▽ 21/12/23				3.0		SM	silty SAND: fine to medium grained; grey		W	VL	
			SPT:0,0,1 N=1	N*_3.00-3.45	0.0	3.5							
						4.0							
			SPT:2,1,1 N=2	N*_4.50-4.95	-1.0	4.5							
WB	U					5.0							
					-2.0	5.5							
				ES_6.00-6.20		6.0		SM	silty SAND: fine grained; grey			L-MD	
			SPT:4,5,6 N=11		-3.0	6.5							
						7.0							
					-4.0	7.5		SP	SAND: fine to coarse grained; grey; trace clay			L	
			SPT:3,3,4 N=7	DS_7.50-7.80		8.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH35**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	21/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	118 mm	**Easting:**	353174.8 m
Drill Rig:	Comacchio Geo 205	**Inclination:**	-90°	**Northing:**	6315264.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.3 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
WB	U				-5.0	8.5		SP	SAND: fine to coarse grained; grey; trace clay *(continued)*		W	L	ALLUVIAL SOIL *(continued)*
			SPT:1,3,3 N=6	DS_9.00-9.22	-6.0	9.0							
					-7.0	9.5							
						10.0							
			SPT:1,1,1 N=2 PP=50, 50, 50 kPa	DS_10.50-10.76		10.5		CI-CL	sandy CLAY: low to medium plasticity; grey; sand is fine to medium grained		w>PL	VS- S	
					-8.0	11.0							
						11.5							
			SPT:1,3,7 N=10	DS_12.00-12.45	-9.0	12.0							
						12.5			*R-BH35 terminated at 12.45 m.* *Target depth*				
					-10.0	13.0							
						13.5							
					-11.0	14.0							
						14.5							
					-12.0	15.0							
						15.5							
						16.0							

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH35A**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	18/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353176.6 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315251.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.3 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data							Material Description		Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U		PID=3.5	ES_0.00-0.20	3.0	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 40 mm thick	D		CARPARK SURFACE
									FILL: gravelly SAND: fine to coarse grained; grey; gravel is fine to medium, sub-rounded to sub-angular			PAVEMENT MATERIAL
									FILL: CLAY: high plasticity; dark grey; organic odour	w~PL		FILL
												0.20-0.40m: POSSIBLE RELICT TOPSOIL
HA	U		PID=2.3	ES_0.50-0.60	2.5	1.0		CH-CI	silty CLAY: medium to high plasticity; brown	w~PL	St	ALLUVIAL SOIL
			PP=280 kPa PP=240 kPa PP=150 kPa PID=6.3	ES_1.30-1.50 DS_1.30-1.50	2.0	1.5						
		NOT ENCOUNTERED	SPT:3,5,5 N=10	N*_1.50-1.95	1.5	2.0					S	
AD/T	U	18/12/23		DS_2.30-2.50	1.0	2.5						
								CH	silty CLAY: high plasticity; pale grey	w~PL		
			PP=60 kPa SPT:1,1,1 N=2	N*_3.00-3.45	0.5	3.0						
					0.0			SM	silty SAND: fine grained; grey	W	VL	
						3.5			*R-BH35A terminated at 3.45 m.* *Target depth*			
					-0.5	4.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH36**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	18/12/2023
Location:	2 McPherson Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353117.2 m
Drill Rig:	Comacchio Geo 405	**Inclination:**	-90°	**Northing:**	6315269.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.2 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U		PID=8.4	ES_0.00-0.20	3.0	0.5			FILL: sandy CLAY: low plasticity; brown-grey; with gravel, fine to coarse, sub-rounded to sub-angular	w<PL		FILL
									FILL: sandy CLAY: low to medium plasticity; brown; with gravel, fine to coarse, sub-rounded to sub-angular from 0.40 m, becoming very wet	w>PL		
			PID=4.8	ES_0.50-0.60								
			PID=3	ES_1.00-1.10		1.0		CH	from 0.80 m: with fine to medium grained sand, brown mottled red	w~PL	St	ALLUVIAL SOIL
				DS_1.20-1.50	2.0	1.5			CLAY: high plasticity; dark grey			
AD/T	U	18/12/23	PP=280, 270, 160 kPa SPT:3,4,7 N=11	N*_1.50-1.95		2.0						
					1.0	2.5						
			PP=80, 70, 300 kPa SPT:1,1,3 N=4	N*_3.00-3.45	0.0	3.0			from 3.00 m: with fine to medium grained sand	w>PL	S- F	
						3.5		ML	sandy SILT: low plasticity; grey	W	L	
					-1.0	4.0						
			SPT:0,0,0 N=0	N*_4.50-4.95		4.5						
					-2.0	5.0						
						5.5						
			SPT:1,3,5 N=8	N*_6.00-6.45	-3.0	6.0				w~PL	F- St	
						6.5			*R-BH36 terminated at 6.45 m.* *Target depth*			
					-4.0	7.0						
						7.5						
						8.0						

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AECOM **Engineering Log** **Final** **BOREHOLE No.** **R-BH37**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	22/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	22/03/2024
Location:	204-206 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Terratest	**Hole Diameter:**	125 mm	**Easting:**	353142.0 m
Drill Rig:	Comacchio Geo 305	**Inclination:**	-90°	**Northing:**	6315303.5 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	2.9 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data									Material Description		Soil Condition		Comments
Method	Support	Installation/Backfill	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U				ES_0.00-0.20					FILL: silty sandy GRAVEL: fine to coarse; dark grey to grey; sub-rounded to sub-angular; sand is fine grained from 0.10 m: becoming dark grey	D		FILL
					DS_0.30-0.40								
					ES_0.40-0.60		0.5		CH	FILL: clayey gravelly SAND: fine to medium grained; grey; gravel is medium, sub-rounded to sub-angular	w<PL	F	ALLUVIAL SOIL
										CLAY: high plasticity; brown-grey			
					DS_0.90-1.10	2.0	1.0						
					ES_1.20-1.30								
					ES_1.40-1.50		1.5		SP	SAND: fine to medium grained; grey mottled red-brown	M	MD	
				SPT:7,10,8 N=18	N*_1.60-1.95								
			12/4/24			1.0	2.0						
			26/3/24		ES_2.30-2.40		2.5						
AD/T	U				DS_2.80-3.00	0.0	3.0		SM	silty SAND: fine grained; grey mottled red-brown	W	L	
				SPT:2,4,3 N=7	N*_3.00-3.30								
					N*_3.30-3.45				SM	silty SAND: fine to medium grained; brown-grey			
						-1.0	4.0						
							4.5		SP	SAND: fine grained; grey		L-MD	
				SPT:1,4,6 N=10	N*_4.50-4.95	-2.0	5.0						
							5.5						
					DS_5.70-5.90	-3.0	6.0			*R-BH37 terminated at 6.00 m. Target depth*			
							6.5						
						-4.0	7.0						
							7.5						
						-5.0	8.0						

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AECOM **Engineering Log** **Final** **HAND AUGER No. HA56**

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	18/03/2024
Location:	Pacific Highway (Wyong Station), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353323.7 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316014.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	17.7 m
				Ver. Datum:	m AHD
				Surface:	Mulch

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=0	ES_0.00-0.05	17.7	0.0			FILL: MULCH: brown	D		FILL
			PID=0	ES_0.30-0.40					FILL: clayey SAND: fine grained; brown; with rootlets			
				DS_0.05-0.80	17.5	0.2						
						0.5						
					17.0	0.7			*HA56 terminated at 0.80 m.* *Hand auger refusal*			
					16.5	1.0						
						1.5						
					16.0	1.7						
						2.0						
					15.5	2.2						
						2.5						
					15.0	2.7						
						3.0						
					14.5	3.2						
						3.5						
					14.0	3.7						
						4.0						

Final

2024_ANZ_GEO_HAND_AUGER WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **HAND AUGER No. HA57**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	18/03/2024
Location:	Pacific Highway (Wyong Station), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353331.5 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6316046.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	17.4 m
				Ver. Datum:	m AHD
				Surface:	Mulch

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=14.3 PID=12.4	ES_0.00-0.05 ES_0.30-0.40 DS_0.05-0.80	17.0	0.5			FILL: MULCH: brown FILL: SAND: fine grained; brown; trace rootlets, with clay	D		FILL
					16.5	1.0			*HA57 terminated at 0.80 m.* *Hand auger refusal*			
					16.0	1.5						
					15.5	2.0						
					15.0	2.5						
					14.5	3.0						
					14.0	3.5						
					13.5	4.0						

Final

2024_ANZ_GEO_HAND_AUGER WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **HAND AUGER No.** **HA58**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	18/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353284.0 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315684.0 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	9.3 m
				Ver. Datum:	m AHD
				Surface:	Soil

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=19.1	ES_0.00-0.20					FILL: sandy CLAY: low plasticity; brown; trace fine to medium gravel	w<PL		FILL
				DS_0.00-0.50	9.0							
									FILL: CLAY: medium to high plasticity; brown-grey	w~PL		
			PID=5.1	ES_0.40-0.50		0.5			*HA58 terminated at 0.50 m.* *Hand auger refusal*			
					8.5	1.0						
					8.0	1.5						
					7.5	2.0						
					7.0	2.5						
					6.5	3.0						
					6.0	3.5						
					5.5	4.0						

Final

2024_ANZ_GEO_HAND_AUGER WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **HAND AUGER No. HA59**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	18/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353282.2 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315672.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	9.0 m
				Ver. Datum:	m AHD
				Surface:	Soil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=0	ES_0.20-0.30	8.5	0.5			FILL: sandy CLAY: low plasticity; brown; trace fine to medium gravel		w<PL		FILL
			PID=0	ES_0.60-0.70 DS_0.00-1.30					FILL: CLAY: medium to high plasticity; brown; trace sand		w~PL		
			PID=0	ES_1.00-1.10	8.0	1.0		CH	CLAY: high plasticity; grey mottled red		w<PL	VSt	RESIDUAL SOIL
					7.5	1.5			*HA59 terminated at 1.30 m.* *Hand auger refusal*				
					7.0	2.0							
					6.5	2.5							
					6.0	3.0							
					5.5	3.5							
						4.0							

Final

2024_ANZ_GEO_HAND_AUGER WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **HAND AUGER No. HA60**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	18/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	AECOM	**Hole Diameter:**	75 mm	**Easting:**	353274.9 m
Drill Rig:	Hand Auger	**Inclination:**	-90°	**Northing:**	6315635.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	7.9 m
				Ver. Datum:	m AHD
				Surface:	Soil

Field Data							Material Description			Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
HA	U	NOT ENCOUNTERED	PID=0.7	ES_0.20-0.30					FILL: silty CLAY: low plasticity; brown; with gravel, fine to medium, sub-rounded to sub-angular, with rootlets	w<PL		FILL
				DS_0.00-1.00	7.5	0.5						
			PID=0.9	ES_0.70-0.80				CH-CI	silty CLAY: medium to high plasticity; red-brown	w<PL	VSt	RESIDUAL SOIL
					7.0	1.0			*HA60 terminated at 1.00 m.* *Hand auger refusal*			
					6.5	1.5						
					6.0	2.0						
					5.5	2.5						
					5.0	3.0						
					4.5	3.5						
					4.0	4.0						

Final

2024_ANZ_GEO_HAND_AUGER WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. A-TP05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	26/03/2024
Location:	McPherson Rd, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353135.7 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315284.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.2 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U			PID=20.9	ES_0.00-0.04 ES_0.04-0.20 BS_0.05-0.40 DS_0.05-0.40	4.0	0.5			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 50 mm thick		D		ROAD SURFACE
										FILL: sandy clayey GRAVEL: fine to coarse; pale brown; sub-rounded to sub-angular; igneous, sand is fine to coarse grained				PAVEMENT MATERIAL
			3 3 3 2 2	PID=20	BS_0.40-0.90 DS_0.40-0.90	3.5	1.0		CI	CLAY: medium plasticity; brown mottled yellow-brown		w>PL	F	ALLUVIAL SOIL
			3 6 4	PID=17	ES_0.90-1.00 DS_0.90-1.20 BS_1.00-1.20	3.0	1.5		ML	clayey SILT: low plasticity; pale brown mottled yellow-brown		w~PL	St-VSt	
LDA	U		12 8 9 9 8 13 6 5		DS_1.20-2.00	2.5	2.0		SM	silty SAND: fine to medium grained; pale grey to pale brown		M	D	
		▽ 26/3/24	7 6 5 3 4 3 3 2 3 5		DS_2.00-3.00	2.0 1.5	2.5 3.0			from 2.00 m: pale grey		W	MD	
						1.0 0.5	3.5 4.0			*A-TP05 terminated at 3.00 m.* *Target depth*				

Final

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: [redacted] A-TP05

Location: McPherson Rd, WYONG NSW

Depth: [redacted]

Date: 26-03-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: A-TP05
PROJECT No:	60709736	LEGEND			THICKNESS: 50 mm
					PHOTO No. 1 of 1

Engineering Log

Location **A-TP05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	McPherson Rd, Tuggerah	**Start Date:**	26/03/2024	**End Date:**	26/03/2024
Location Description:		**Easting:**	353135.7 m	**RL:**	4.2 m
		Northing:	6315284.3 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)



A-TP05_Pit



A-TP05_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **A-TP06**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	20/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/12/2023
Location:	204-206 Pacific Highway. Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	2 x 0.5 m	**Easting:**	353192.0 m
Plant:	4.5T JCB 8045Z	**Orientation:**		**Northing:**	6315300.8 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	6.5 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
			2			6.5				TOPSOIL: sandy SILT: non-plastic; brown; sand is fine to medium grained, with gravel, fine to coarse, sub-angular, igneous	W		TOPSOIL
			2										
			2		BS_0.00-0.50								
			4										
			5				0.5			FILL: CLAY: medium plasticity; brown mottled orange; with medium to coarse gravel, sub-angular, igneous	w<PL		FILL
			7			6.0							
			3						CI	CLAY: medium plasticity; brown mottled orange; with sand, fine grained	w>PL	F- St	ALLUVIAL SOIL
			3		BS_0.50-1.00								
			4										
			6								w<PL	VSt	
			6		DS_0.50-1.50	5.5	1.0						
			9										
			9										
			11										
			9				1.5						
E	U		7			5.0							
			7										
			7		BS_1.50-2.00								
			8										
			6				2.0						
			5			4.5							
			6										
			6										
			6										
			5				2.5						
			5			4.0			CL	sandy CLAY: low plasticity; grey; sand is fine to medium grained	w~PL	St-VSt	
		▽ 20/12/2023			BS_2.50-3.10								
						3.5	3.0						
										A-TP06 terminated at 3.10 m. *Target depth*			
						3.0	3.5						
							4.0						

Final

Engineering log should be read in conjunction with AECOM soil and rock description sheets.

AECOM **Engineering Log**

Location **A-TP06**

Sheet: 1 of 2

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** JL	**Checked by:**	PJW
Location: 204-206 Pacific Highway. Tuggerah	**Start Date:** 20/12/2023	**End Date:**	20/12/2023
Location Description:	**Easting:** 353192.0 m	**RL:**	6.5 m
	Northing: 6315300.8 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Topsoil



A-TP06_Pit

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. A-TP07**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/03/2024
Project:	Wyong Town Centre	**Logged by:**	HE	**End Date:**	27/03/1934
Location:	210B Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353218.5 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315348.2 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	8.1 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
LDA	U	NOT ENCOUNTERED		PID=1.9	ES_0.00-0.05	8.0	0.0			TOPSOIL: silty gravelly SAND: fine to coarse grained; pale brown		D		TOPSOIL
					ES_0.05-0.30					FILL: silty gravelly SAND: fine to coarse grained; pale brown; gravel is fine to coarse, sub-rounded to sub-angular, igneous, trace rootlets		D		FILL
				PID=7.2 PID=5.8	DS_0.05-0.90 ES_0.30-0.70	7.5	0.5							
			4				1.0			FILL: silty SAND: fine grained; dark brown; with gravel, fine to medium, sub-rounded				
			4		ES_0.90-1.30	7.0								
			3	PID=4	BS_0.91-1.50									
			2											
			1				1.5							
			1			6.5			SP	SAND: fine grained; brown; trace silt		M	L-MD	ALLUVIAL SOIL
			3											
			2											
			3											
			4				2.0							
			2			6.0								
			1		DS_1.50-3.00									
			1											
			3										MD	
			5				2.5							
			4											
			3			5.5								
			3											
			3											
			3				3.0							
						5.0				*A-TP07 terminated at 3.00 m.* *Target depth*				
							3.5							
						4.5								
							4.0							

Final

Engineering Log

Location **A-TP07**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** HE	**Checked by:** PJW	
Location: 210B Pacific Highway, Tuggerah	**Start Date:** 27/03/2024	**End Date:** 27/03/1934	
Location Description:	**Easting:** 353218.5 m	**RL:** 8.1 m	
	Northing: 6315348.2 m	**Ver. Datum:** m AHD	
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:** Topsoil	



A-TP07_Pit



A-TP07_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. A-TP09**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	25/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	25/03/2024
Location:	Rose Street, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353538.0 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316091.2 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	6.5 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.10	6.5				FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 10 mm thick			ROAD SURFACE
					ES_0.01-0.25					FILL: CEMENTED MATERIAL: pale grey; aggregates up to 40 mm, 240 mm thick			CEMENTED BASE
					ES_0.25-0.35 BS_0.25-0.35					FILL: gravelly clayey SAND: fine to coarse grained; dark grey; gravel is fine to medium, sub-rounded to sub-angular	D		PAVEMENT MATERIAL
				PID=2					CI		w>PL	F	ALLUVIAL SOIL
			2	PID=4			0.5			silty CLAY: medium plasticity; dark grey			
			2		BS_0.35-0.70 DS_0.35-0.70	6.0							
			3										
			4						CI	silty CLAY: medium plasticity; pale grey; with gravel, fine to medium, sub-angular	w<PL	VSt	RESIDUAL SOIL
			6										
			8				1.0						
			8	PID=8.5		5.5							
			11		BS_0.70-1.50 DS_0.70-1.50							H	
			13										
			15										
			17				1.5						
LDA	U	NOT ENCOUNTERED	18			5.0			CH-CI	CLAY: medium to high plasticity; pale grey mottled red			
			19										
			21										
			25 /100										
					DS_1.50-2.70	4.5	2.0						
						4.0	2.5			from 2.70 m, becoming becoming pale grey mottled brown			
							3.0						
						3.5				*A-TP09 terminated at 3.00 m.* *Target depth*			
						3.0	3.5						
							4.0						

Final

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: A-TP09

Location: ROSE STREET, WYONG NSW

Depth: 3m

Date: 25-03-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: A-TP09
PROJECT No:	60709736	LEGEND			THICKNESS: 250 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log**

Location **A-TP09**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	AT	**Checked by:**	PJW
Location:	Rose Street, Wyong	**Start Date:**	25/03/2024	**End Date:**	25/03/2024
Location Description:		**Easting:**	353538.0 m	**RL:**	6.5 m
		Northing:	6316091.2 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Pavement (seal)



A-TP09_Pit



A-TP09_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No. A-TP13**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	19/12/2023
Location:	63A Howarth Street, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Easting:**	353488.8 m	**RL:**	11.6 m
Plant:	4.5T JCB 8045Z	**Northing:**	6316133.5 m	**Ver. Datum:**	m AHD
Dimensions:	2.5 x 0.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Topsoil
Orientation:					

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED		PID=0.05	ES_0.00-0.20	11.5	0.0			TOPSOIL: clayey SILT: non-plastic; brown	M		TOPSOIL
			5							FILL: gravelly SILT: non-plastic; brown; gravel is fine to coarse, sub-angular to sub-rounded, trace fine to coarse grained sand	M		FILL
			8		BS_0.20-0.50								
			9										
			6				0.5						
			6			11.0			CI	CLAY: medium plasticity; pale brown mottled orange and pale grey	w<PL	VSt-H	RESIDUAL SOIL
			7										
			7		BS_0.50-1.00								
			8										
			8	PID=2.5	ES_0.90-1.00		1.0						
			3			10.5							
			6										
			3		BS_1.00-1.50								
			20/60							SANDSTONE: orange-brown and pale grey; extremely weathered, soil strength	D	H	PATONGA CLAYSTONE
							1.5						
						10.0							
					BS_1.50-2.00								
				PID=1.7	ES_1.90-2.00		2.0						
						9.5				*A-TP13 terminated at 2.00 m.* *Refusal*			
							2.5						
						9.0							
							3.0						
						8.5							
							3.5						
						8.0							
							4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Location** **A-TP13**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** JL	**Checked by:**	PJW
Location: 63A Howarth Street, Wyong	**Start Date:** 19/12/2023	**End Date:**	19/12/2023
Location Description:	**Easting:** 353488.8 m	**RL:**	11.6 m
	Northing: 6316133.5 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Topsoil



A-TP13_Pit



A-TP13_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP01**

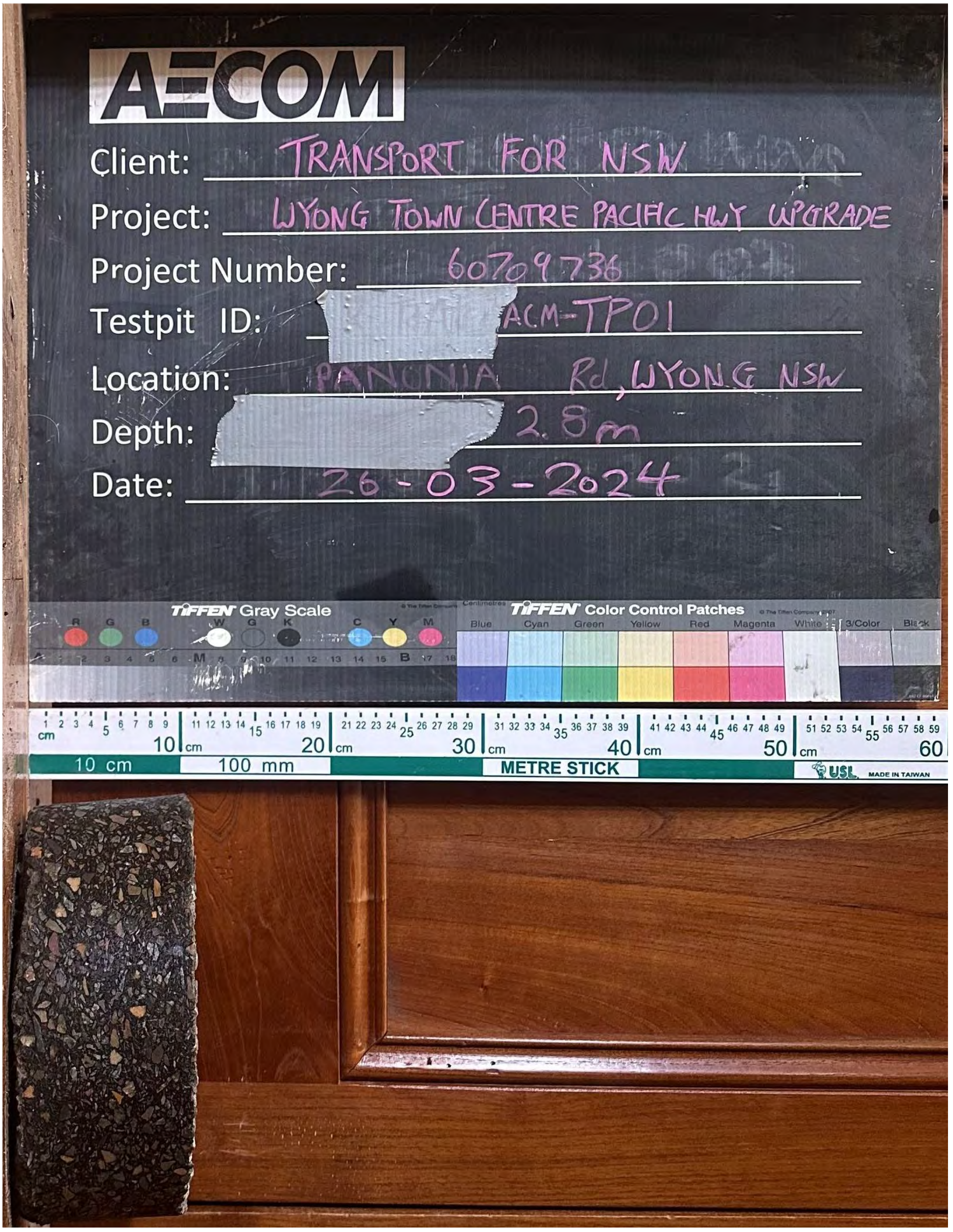
Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	26/03/2024
Location:	Panonia Road, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353299.7 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315395.6 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	2.5 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.05	2.5				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 105 mm thick			ROAD SURFACE
				PID=5.6	ES_0.09-0.30					FILL: silty gravelly SAND: fine to medium grained; brown; gravel is fine to medium, angular to sub-angular, igneous	D		PAVEMENT MATERIAL
			5		BS_0.09-0.70 DS_0.09-0.70		0.5						
			10			2.0							
			10	PID=7.6	ES_0.50-0.70								
			4										
			2						CL	sandy CLAY: low plasticity; dark brown; sand is fine to medium grained	w>PL	S	ALLUVIAL SOIL
			2										
			2				1.0						
			2	PID=3.7	BS_0.70-1.30 DS_0.70-1.30	1.5							
			1										
			2										
			2							from 1.30 m: sand is fine grained			
LDA	U	NOT ENCOUNTERED	2				1.5						
			2			1.0						F- St	
			3										
			4										
			3		BS_1.30-2.40								
			3				2.0						
			4			0.5							
			6									VSt	
			7										
			8										
			16				2.5		CL	sandy CLAY: low plasticity; pale brown to pale grey; sand is fine to medium grained	D	VD	RESIDUAL SOIL
			14			0.0							
					BS_2.40-2.80								
										ACM-TP01 terminated at 2.80 m. *Refusal*			
							3.0						
						-0.5							
							3.5						
						-1.0							
							4.0						

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: ACM-TP01
PROJECT No:	60709736	LEGEND			THICKNESS: 90 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log** **Location** **ACM-TP01**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:** PJW	
Location: Panonia Road, Wyong	**Start Date:** 26/03/2024	**End Date:** 26/03/2024	
Location Description:	**Easting:** 353299.7 m	**RL:** 2.5 m	
	Northing: 6315395.6 m	**Ver. Datum:** m AHD	
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:** Pavement (asphalt)	



ACM-TP01_Pit



ACM-TP01_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP03**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	28/10/2023
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	28/10/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Infraworks	**Easting:**	353308.7 m	**RL:**	9.4 m
Plant:	5.5T Kubota U55-4	**Northing:**	6315687.9 m	**Ver. Datum:**	m AHD
Orientation:		**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Ballast

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	28/10/2023 ▽	16 10 20 14 19 20 /50	PID=1.5 PID=1.1	BS_0.05-0.25 ES_0.10-0.20 ES_0.50-0.60 BS_0.25-1.00	9.0 8.5	0.5 1.0			FILL: cobbly GRAVEL: medium to coarse; grey; angular; igneous (ballast) FILL: GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous, with sand, fine to coarse grained, with clay, trace rootlets FILL: GRAVEL: fine to coarse; dark grey; rounded to sub-rounded; igneous and river gravels, with clay, trace sand	M		FILL
			20 /50	PID=1.5	ES_1.00-1.10 BS_1.00-1.55	8.0	1.5			CLAYSTONE: red-brown; extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
						7.5 7.0 6.5 6.0 5.5	2.0 2.5 3.0 3.5 4.0			*ACM-TP03 terminated at 1.55 m.* *Refusal*			

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log**

Location **ACM-TP03**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	Rail Corridor south of Wyong Station	**Start Date:**	28/10/2023	**End Date:**	28/10/2023
Location Description:		**Easting:**	353308.7 m	**RL:**	9.4 m
		Northing:	6315687.9 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Ballast



ACM-TP03_Pit



ACM-TP03_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP03**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	28/10/2023
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	28/10/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Infraworks	**Easting:**	353308.7 m	**RL:**	9.4 m
Plant:	5.5T Kubota U55-4	**Northing:**	6315687.9 m	**Ver. Datum:**	m AHD
Dimensions:	2 x 0.5 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Ballast
Orientation:					

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	28/10/2023 ▽		PID=1.5	BS_0.05-0.25 ES_0.10-0.20					FILL: cobbly GRAVEL: medium to coarse; grey; angular; igneous (ballast)		M		BALLAST FILL
			16 10 20			9.0	0.5			FILL: GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous, with sand, fine to coarse grained, with clay, trace rootlets FILL: GRAVEL: fine to coarse; dark grey; rounded to sub-rounded; igneous and river gravels, with clay, trace sand				
			14 19 20 /50	PID=1.1	ES_0.50-0.60 BS_0.25-1.00									
						8.5	1.0							
			20 /50	PID=1.5	ES_1.00-1.10 BS_1.00-1.55					CLAYSTONE: red-brown; extremely to highly weathered, soil to very low strength		D	H	PATONGA CLAYSTONE
						8.0	1.5							
										ACM-TP03 terminated at 1.55 m. *Refusal*				
						7.5	2.0							
						7.0	2.5							
						6.5	3.0							
						6.0	3.5							
						5.5	4.0							

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Engineering Log

Location **ACM-TP04**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** RAH	**Checked by:**	PJW
Location: Rail Corridor south of Wyong Station	**Start Date:** 28/10/2023	**End Date:**	28/10/2023
Location Description:	**Easting:** 353307.3 m	**RL:**	9.4 m
	Northing: 6315676.1 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP04_Pit



ACM-TP04_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	28/10/2023
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	28/10/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Infraworks	**Dimensions:**	2 x 0.5 m	**Easting:**	353305.9 m
Plant:	5.5T Kubota U55-4	**Orientation:**		**Northing:**	6315662.8 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	9.2 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	28/10/2023 ▽	13 16 13 12 5 3 16 20/20	PID=1.9 PID=1.6 PID=2.7	BS_0.00-0.30 ES_0.10-0.20 ES_0.50-0.60 BS_0.30-1.00 ES_1.00-1.10 BS_1.00-1.15	9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 4.0	0.5 1.0 1.5 2.0 2.5 3.0 3.5			FILL: GRAVEL: fine to coarse; dark grey and orange-brown; angular to sub-angular; igneous and claystone, with clay, trace sand FILL: GRAVEL: fine to medium; dark grey; rounded to sub-rounded; igneous, claystone and river gravels, with clay, trace sand from 0.50 m: with coal waste, black FILL: gravelly SAND: fine to coarse grained; dark grey to black; gravel is fine to coarse grained, igneous and coal waste *ACM-TP05 terminated at 1.15 m.* *Refusal*	M D		FILL

Final

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AECOM **Engineering Log**

Location **ACM-TP05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	Rail Corridor south of Wyong Station	**Start Date:**	28/10/2023	**End Date:**	28/10/2023
Location Description:		**Easting:**	353305.9 m	**RL:**	9.2 m
		Northing:	6315662.8 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP05_Pit



ACM-TP05_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP07**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/10/2023
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	29/10/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Infraworks	**Dimensions:**	2 x 0.5 m	**Easting:**	353292.9 m
Plant:	5.5T Kubota U55-4	**Orientation:**		**Northing:**	6315599.5 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	8.5 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	29/10/2023 ▽	18		BS_0.00-0.15	8.5				FILL: GRAVEL: fine to medium; pale brown; sub-angular; igneous, with sand, fine to coarse grained, with clay, trace rootlets	M		FILL
			25							FILL: GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous, with clay, trace sand			
			21		BS_0.15-0.35								
			20							FILL: gravelly CLAY: high plasticity; orange mottled red and pale green-grey; gravel is fine to medium, sub-angular, igneous, claystone and sandstone, trace fine to coarse grained sand	w~PL		
			18				0.5						
			7			8.0							
			5							from 0.65 m, becoming brown mottled orange and pale green-grey			
			8										
			8		BS_0.65-1.00								
			3				1.0						
			4			7.5							
			5										
			6							from 1.20 m: trace cobbles, angular, igneous			
			5										
			6				1.5						
			5			7.0							
			9										
			14										
			12										
			20 /80				2.0						
						6.5				CLAYSTONE: pale green-grey and red-brown; extremely to highly weathered, soil to very low strength	D	H	PATONGA CLAYSTONE
										ACM-TP07 terminated at 2.20 m. *Refusal*			
						6.0	2.5						
						5.5	3.0						
						5.0	3.5						
							4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Location** **ACM-TP07**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	Rail Corridor south of Wyong Station	**Start Date:**	29/10/2023	**End Date:**	29/10/2023
Location Description:		**Easting:**	353292.9 m	**RL:**	8.5 m
		Northing:	6315599.5 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP07_Pit



ACM-TP07_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP08**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	29/10/2023
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	29/10/2023
Location:	Rail Corridor south of Wyong Station	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Infraworks	**Dimensions:**	2 x 0.5 m	**Easting:**	353297.1 m
Plant:	5.5T Kubota U55-4	**Orientation:**		**Northing:**	6315580.8 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	8.1 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED	16	PID=0.2	ES_0.10-0.20	8.0				FILL: GRAVEL: fine to medium; pale brown; sub-angular; igneous, with sand, fine to coarse grained, with clay, trace rootlets	M		FILL
			18		BS_0.15-0.25					FILL: GRAVEL: fine to coarse; grey; sub-angular; with clay, with sand, medium to coarse grained	w<PL		
			11							FILL: gravelly CLAY: high plasticity; orange mottled red and pale green-grey; gravel is fine to medium, sub-angular, igneous, claystone and sandstone, trace fine to coarse grained sand			
			4		BS_0.25-0.65		0.5			at 0.50 m: rubber cable			
			6	PID=5.6	ES_0.50-0.60								
			6			7.5				*ACM-TP08 terminated at 0.65 m.* *Terminated due to services*			
			13				1.0						
			13			7.0							
			15				1.5						
			12			6.5							
			13				2.0						
			12			6.0							
			20 /80				2.5						
						5.5							
							3.0						
						5.0							
							3.5						
						4.5							
							4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

Engineering Log

Location **ACM-TP08**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	Rail Corridor south of Wyong Station	**Start Date:**	29/10/2023	**End Date:**	29/10/2023
Location Description:		**Easting:**	353297.1 m	**RL:**	8.1 m
		Northing:	6315580.8 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP08_Pit

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP09**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	13/12/2023
Location:	Rose Street Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353592.2 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316170.3 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	5.4 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.035					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 35 mm thick	M		ROAD SURFACE
					ES_0.035-0.10 BS_0.04-0.33					FILL: sandy GRAVEL: fine to medium; dark brown and dark grey; angular to sub-angular; sand is fine to medium grained, with silt			PAVEMENT MATERIAL
					ES_0.33-0.50 BS_0.33-0.50	5.0	0.5			FILL: gravelly CLAY: low to medium plasticity; brown-grey to brown; gravel is fine, angular to sub-angular, trace fine grained sand, trace concrete cobbles	w<PL		FILL
			3						CI	CLAY: medium plasticity; dark grey mottled pale brown and orange-brown; with silt	w>PL	F	ALLUVIAL SOIL
			2										
			4		BS_0.50-1.20	4.5							
			1		DS_0.50-1.50		1.0						
			2										
			3										
			2										
			3			4.0							
			5				1.5						
LDA	U	NOT ENCOUNTERED	7						CI	CLAY: medium plasticity; dark grey mottled pale brown and orange-brown; trace fine grained sand	w<PL	VSt-H	RESIDUAL SOIL
			8										
			9										
			8		BS_1.50-2.20 DS_1.50-2.20	3.5							
			9				2.0						
			10										
			9										
			10						CH-CI	CLAY: medium to high plasticity; pale grey, yellow-brown and red-brown			
			11			3.0							
			17				2.5						
			14		BS_2.20-3.00								
			15										
			17		DS_2.50-3.00								
			21										
						2.5	3.0			*ACM-TP09 terminated at 3.00 m.* *Target depth*			
						2.0	3.5						
						1.5	4.0						

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM

Client: TfNSW

Project: WYONG TOWN CENTRE

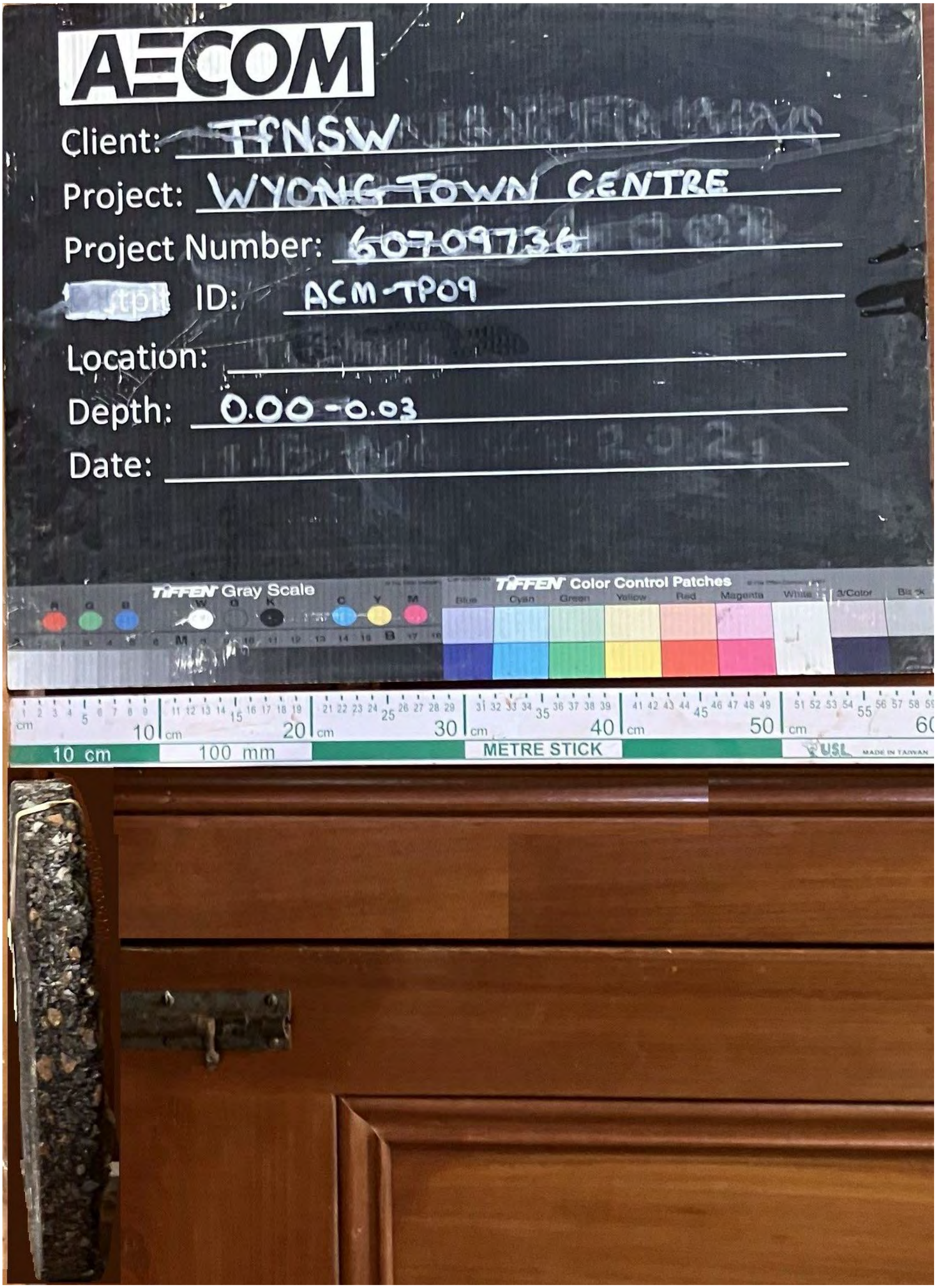
Project Number: 60709736

[redacted] ID: ACM-TP09

Location:

Depth: 0.00 - 0.03

Date:



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: ACM-TP09
PROJECT No:	60709736	LEGEND			THICKNESS: 35 mm
					PHOTO No. 1 of 1

Engineering Log

Location **ACM-TP09**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	AT	**Checked by:**	PJW
Location:	Rose Street Carpark	**Start Date:**	13/12/2023	**End Date:**	13/12/2023
Location Description:		**Easting:**	353592.2 m	**RL:**	5.4 m
		Northing:	6316170.3 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)



ACM-TP09_Pit



ACM-TP09_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP11**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	25/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	25/03/2024
Location:	Rose Street, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353579.0 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316084.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.6 m
				Ver. Datum:	m AHD
				Surface:	Pavement (seal)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED			ES_0.00-0.01	4.5	0.0			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick			ROAD SURFACE
										FILL: CEMENTED MATERIAL: pale grey; aggregates up to 20 mm, 235 mm thick			CEMENTED BASE
				PID=8.4	ES_0.30-0.40					FILL: gravelly clayey SAND: fine to coarse grained; dark grey; gravel is fine to medium, sub-rounded to sub-angular, igneous	M		PAVEMENT MATERIAL
							0.5		CI	silty CLAY: medium plasticity; dark grey	w>PL	S	ALLUVIAL SOIL
			1	PID=19.1	BS_0.40-0.70 ES_0.50-0.70	4.0							
			1										
			2										
			3	PID=9.7	ES_0.70-1.00		1.0		CI	CLAY: medium plasticity; pale brown; with sand, fine grained, trace ironstone gravel	w<PL	St	RESIDUAL SOIL
			4										
			5			3.5						VSt	
			7										
			8										
LDA	U		9									H	
			10		BS_0.70-2.10 DS_0.70-2.10		1.5						
			15			3.0							
			13										
			15										
			16										
			16				2.0						
			20			2.5							
			25		BS_2.10-2.30				CI-CL	CLAY: low to medium plasticity; pale grey			
					BS_2.30-2.50				CL	CLAY: low plasticity; pale red-brown			
							2.5						
						2.0				*ACM-TP11 terminated at 2.50 m.* *Refusal*			
							3.0						
						1.5							
							3.5						
						1.0							
							4.0						

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: A-TP11

Location: ROSE STREET, WYONG NSW

Depth: 2.5m

Date: 25-03-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: ACM-TP11
PROJECT No:	60709736	LEGEND			THICKNESS: 250 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log**

Location **ACM-TP11**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	AT	**Checked by:**	PJW
Location:	Rose Street, Wyong	**Start Date:**	25/03/2024	**End Date:**	25/03/2024
Location Description:		**Easting:**	353579.0 m	**RL:**	4.6 m
		Northing:	6316084.9 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Pavement (seal)



ACM-TP11_Pit



ACM-TP11_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP13**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	18/12/2023
Location:	210B Pacific Highway, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	2.5 x 0.5 m	**Easting:**	353176.9 m
Plant:	4.5T JCB 8045Z	**Orientation:**		**Northing:**	6315380.0 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	3.0 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED	2	PID=1	ES_0.00-0.20	3.0				TOPSOIL: clayey SILT: non-plastic; brown; with rootlets, trace fine gravel	M		TOPSOIL
			4							FILL: clayey SILT: non-plastic; brown; with gravel, fine to coarse, sub-rounded to sub-angular, igneous	M		FILL
			5										
			7		BS_0.20-0.50								
			10				0.5						
			12			2.5							
			10							FILL: CLAY: low plasticity; orange-brown; trace fine to coarse gravel	w<PL		
			10		BS_0.50-1.00								
			9										
			11	PID=3.2	ES_0.90-1.00		1.0						
			13			2.0							
			12										
			9										
			9		BS_1.20-1.50								
			8										
			7			1.5	1.5						
			5										
			5										
			5										
			5	PID=3.7	ES_1.90-2.00		2.0						
			5			1.0			CI-CL	sandy CLAY: low to medium plasticity; brown-grey; sand is fine to medium grained, trace fine gravel	w>PL	F	ALLUVIAL SOIL
			3										
			3										
			2									St	
			4	PID=2.8	BS_2.30-2.50		2.5						
			5			0.5							
					ES_2.90-3.00		3.0						
						0.0				*ACM-TP13 terminated at 3.00 m.* *Target depth*			
							3.5						
						-0.5							
							4.0						

Final

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Engineering Log

Location **ACM-TP13**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** JL	**Checked by:**	PJW
Location: 210B Pacific Highway, Tuggerah	**Start Date:** 18/12/2023	**End Date:**	18/12/2023
Location Description:	**Easting:** 353176.9 m	**RL:**	3.0 m
	Northing: 6315380.0 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Topsoil



ACM-TP13_Pit



ACM-TP13_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP15**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	26/03/2024
Location:	McPherson Rd, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353181.5 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315277.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	2.9 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.01					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 40 mm thick	D		ROAD SURFACE
				PID=8.8	ES_0.04-0.20 BS_0.04-0.20					FILL: gravelly silty SAND: fine to coarse grained; pale grey; gravel is fine to coarse, angular to sub-angular			PAVEMENT MATERIAL
									CI	sandy CLAY: medium plasticity; brown; sand is fine grained, with silt	w~PL	F- St	ALLUVIAL SOIL
				PID=14.1	ES_0.20-0.50	2.5	0.5						
			4										
			3										
			4										
			4	PID=51.4	DS_0.50-1.00								
			3										
			3		BS_0.20-1.70 DS_0.20-1.70	2.0	1.0						
			3										
			4										
			4	PID=44.9									
			5								w<PL	VSt	
			7										
			7		DS_1.20-1.70	1.5	1.5						
			6										
			5										
			8						CI	sandy CLAY: medium plasticity; red-brown mottled pale grey; sand is fine to coarse grained		H	
			10										
			8		BS_1.70-2.10 DS_1.70-2.10	1.0	2.0						
			13										
		▽	5						CL	silty CLAY: low plasticity; grey; with sand, fine grained		St-VSt	
		26/3/24	6										
			4										
			3			0.5	2.5				w>PL	S- F	
			3		BS_2.10-3.00								
			3										
			3										
			3										
			3			0.0	3.0						
LDA	U									*ACM-TP15 terminated at 3.00 m.* *Target depth*			
						-0.5	3.5						
						-1.0	4.0						

Final

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: [redacted] ACM-TP15

Location: [redacted] McPherson Rd, WYONG NSW

Depth: [redacted]

Date: 26-03-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: ACM-TP15
PROJECT No:	60709736	LEGEND			THICKNESS: 40 mm
					PHOTO No. 1 of 1

Engineering Log

Location **ACM-TP15**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736
Project:	Wyong Town Centre	**Logged by:**	RAH
Location:	McPherson Rd, Tuggerah	**Start Date:**	26/03/2024
Location Description:		**Easting:**	353181.5 m
		Northing:	6315277.4 m
		Hor. Proj/Dat:	MGA94/GDA94-56H

Checked by:	PJW
End Date:	26/03/2024
RL:	2.9 m
Ver. Datum:	m AHD
Surface:	Pavement (asphalt)



ACM-TP15_Pit



ACM-TP15_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP16**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/04/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	08/04/2024
Location:	Pacific Highway (Red Rooster), Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353215.9 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315228.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.4 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
LDA	U	9/4/24		PID=7.9	BS_0.00-0.20					TOPSOIL: silty sandy CLAY: low plasticity; dark grey; sand is fine to medium grained, with gravel, fine to medium, sub-angular, igneous, with rootlets	w~PL		TOPSOIL
					BS_0.00-0.60	3.0	0.5			FILL: silty sandy CLAY: low plasticity; dark brown; sand is fine to medium grained, with gravel, fine to medium, sub-angular, igneous	w~PL		FILL
			2	PID=0.9 PP=50, 80, 80 kPa	BS_0.60-0.80				CI-CL	sandy CLAY: low to medium plasticity; brown; sand is fine to medium grained	w>PL	F	ALLUVIAL SOIL
			2			2.5	1.0						
			2		BS_0.60-1.50								
			3										
			3										
			5								w<PL	VSt	
			6			2.0							
			5				1.5						
			6										
			9	PID=1	BS_1.50-1.70				SP	SAND: fine to medium grained; yellow-brown; with clay, trace fine gravel	M	MD	
			9										
			9										
			8			1.5							
			6		BS_1.50-2.40		2.0						
			5										
			7										
			7										
			6			1.0							
			7				2.5		SP	SAND: fine to medium grained; pale grey	W		
			7										
			7		BS_2.40-3.00								
			7			0.5							
			7										
			6				3.0						
			6			0.0				*ACM-TP16 terminated at 3.00 m. Target depth*			
							3.5						
						-0.5							
							4.0						

Final

Engineering log should be read in conjunction with AECOM soil and rock description sheets.

AECOM **Engineering Log**

Location **ACM-TP16**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:**	PJW
Location: Pacific Highway (Red Rooster), Tuggerah	**Start Date:** 8/04/2024	**End Date:**	8/04/2024
Location Description:	**Easting:** 353215.9 m	**RL:**	3.4 m
	Northing: 6315228.9 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Topsoil



ACM-TP16_Pit



ACM-TP16_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP17**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	18/12/2023
Location:	8 McPherson Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	2.5 x 0.5 m	**Easting:**	353015.8 m
Plant:	4.5T JCB 8045Z	**Orientation:**		**Northing:**	6315287.8 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	2.5 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data								Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED		PID=3.7	ES_0.00-0.20					TOPSOIL: sandy SILT: non-plastic; pale brown; sand is fine to coarse grained, with rootlets, trace gravel, fine to coarse, sub-rounded to sub-angular, igneous	M		TOPSOIL
			5										
			7							FILL: gravelly SILT: non-plastic; brown; gravel is fine to coarse, sub-rounded to sub-angular, igneous, with sand, fine to coarse grained	M		FILL
			7		BS_0.20-0.50								
			5			2.0	0.5						
			7										
			6										
			12							from 0.70 m: with bricks and cobbles			
			10										
			8	PID=3.2	ES_0.90-1.00	1.5	1.0						
			10		BS_1.00-1.20								
			10										
			8										
			6										
			5		BS_1.40-1.60	1.0	1.5						
			5										
			6	PID=0.4	ES_1.60-1.70				CI-CL	sandy CLAY: low to medium plasticity; dark grey; sand is fine to coarse grained, trace fine gravel	w<PL	St	ALLUVIAL SOIL
			5							At 1.70 m: dark grey tree roots			
			7										
			8	PID=1.5	ES_1.90-2.00	0.5	2.0						
			10									VSt	
			11		BS_2.00-2.30								
			11										
			11										
			11			0.0	2.5						
			12										
			13										
					BS_2.80-3.00								
				PID=0.8	ES_2.90-3.00	-0.5	3.0						
										ACM-TP17 terminated at 3.00 m. *Target depth*			
						-1.0	3.5						
						-1.5	4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Location** **ACM-TP17**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** JL	**Checked by:**	PJW
Location: 8 McPherson Road, Tuggerah	**Start Date:** 18/12/2023	**End Date:**	18/12/2023
Location Description:	**Easting:** 353015.8 m	**RL:**	2.5 m
	Northing: 6315287.8 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Topsoil



ACM-TP17_Pit



ACM-TP17_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **ACM-TP18**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	20/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/12/2023
Location:	8 McPherson Road, Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	2.5 x 0.5 m	**Easting:**	353037.9 m
Plant:	4.5T JCB 8045Z	**Orientation:**		**Northing:**	6315258.1 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	3.2 m
				Ver. Datum:	m AHD
				Surface:	Fill

Field Data								Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED		PID=3.2	ES_0.00-0.20	3.0	0.5			FILL: sandy GRAVEL: fine to medium; dark brown-grey; angular; sand is fine to coarse, trace silt, cemented	D		FILL
					BS_0.20-0.50								
			9							FILL: CLAY: high plasticity; brown; with gravel, fine to coarse, sub-rounded to sub-angular	w<PL		
			8			2.5							
			8		BS_0.50-1.00								
			5										
			8	PID=2.9	ES_0.90-1.00		1.0						
			6										
			4			2.0							
			5										
			3										
			3		ES_1.40-1.50		1.5						
			1										
			3						CI-CL	sandy CLAY: low to medium plasticity; dark grey; sand is fine to coarse grained, trace fine gravel	w>PL	St	ALLUVIAL SOIL
			5			1.5							
			4										
			4	PID=0.65	ES_1.90-2.00		2.0						
			11								w~PL	VSt	
			7										
			5		BS_2.00-2.50	1.0							
			5										
			5		ES_2.40-2.50		2.5						
			6										
			6			0.5							
			6										
			6										
			8	PID=1.7	ES_2.90-3.00		3.0						
			8			0.0				*ACM-TP18 terminated at 3.00 m.* *Target depth*			
							3.5						
						-0.5							
							4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log**

Location **ACM-TP18**

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	JL	**Checked by:**	PJW
Location:	8 McPherson Road, Tuggerah	**Start Date:**	20/12/2023	**End Date:**	20/12/2023
Location Description:		**Easting:**	353037.9 m	**RL:**	3.2 m
		Northing:	6315258.1 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP18_Pit

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Location** **ACM-TP18**

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	JL	**Checked by:**	PJW
Location:	8 McPherson Road, Tuggerah	**Start Date:**	20/12/2023	**End Date:**	20/12/2023
Location Description:		**Easting:**	353037.9 m	**RL:**	3.2 m
		Northing:	6315258.1 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Fill



ACM-TP18_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. ACM-TP19**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/04/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	08/04/2024
Location:	Pacific Highway (Red Rooster), Tuggerah	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353185.8 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6315098.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data								Material Description	Soil Condition		Comments
Method	Support	Ground Water	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U	NOT ENCOUNTERED			3.0				FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 300 mm thick			ROAD SURFACE
			PID=1.7	ES_0.20-0.30								
LDA	U			ES_0.30-0.50 BS_0.30-0.55		0.5			FILL: sandy GRAVEL: fine; dark grey; angular; igneous, sand is fine to coarse grained	D		PAVEMENT MATERIAL
					2.5				FILL: clayey SAND: fine to coarse grained; pale brown; with gravel, fine to coarse, angular to sub-angular	D		FILL
			PID=0.6	ES_0.60-0.80								
			PID=0.8	BS_0.55-1.20 ES_0.80-1.00		1.0			from 0.80 m, becoming pale brown-grey			
					2.0				from 1.20 m: sandstone boulders			
				BS_1.20-1.30					*ACM-TP19 terminated at 1.30 m.* *Refusal*			
					1.5	1.5						
					1.0	2.0						
					0.5	2.5						
					0.0	3.0						
					-0.5	3.5						
						4.0						

Final

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: [redacted] ACM-TP19

Location: PACIFIC HIGHWAY, WYONG NSW

Depth: [redacted]

Date: 08-04-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: ACM-TP19
PROJECT No:	60709736	LEGEND			THICKNESS: 290 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log** **Location** **ACM-TP19**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:**	PJW
Location: Pacific Highway (Red Rooster), Tuggerah	**Start Date:** 8/04/2024	**End Date:**	8/04/2024
Location Description:	**Easting:** 353185.8 m	**RL:**	3.1 m
	Northing: 6315098.1 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)



ACM-TP19_Pit



ACM-TP19_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **TEST PIT No.** **R-TP03**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	20/03/2024
Project:	Wyong Town Centre	**Logged by:**	RAH	**End Date:**	20/03/2024
Location:	4 Pacific Highway, Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	3 x 0.6 m	**Easting:**	353257.1 m
Plant:	5.5T Kubota U55-4	**Orientation:**		**Northing:**	6315661.2 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	7.1 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description	Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED		PID=2.6	ES_0.00-0.12	7.0				TOPSOIL: silty SAND: fine to coarse grained; brown; with rootlets, with gravel, fine to medium, concrete, sandstone and igneous, trace plastic, paper and scrap metal	D		TOPSOIL
											D		FILL
				PID=4.7	BS_0.12-0.55 DS_0.12-0.55		0.5			FILL: SAND: fine to coarse grained; pale brown; with cobbles, angular to sub-rounded, sandstone and brick, with gravel, fine to coarse, sub-angular, sandstone, trace roots, plastic and scrap metal			
						6.5				FILL: sandy CLAY: low plasticity; brown; sand is fine to coarse grained, with gravel, fine, sandstone and river gravels	w<PL		
			8	PID=6.7	BS_0.55-1.30 DS_0.55-1.30		1.0						
			11			6.0							
			10										
			9										
			11						CI	sandy CLAY: medium plasticity; grey mottled brown and orange-brown	w<PL	H	RESIDUAL SOIL
			12										
			13				1.5						
			13	PID=7	DS_1.30-2.00 BS_1.30-2.00	5.5							
			14										
			14										
			17				2.0						
			21										
			17			5.0							
			16										
			18										
			18				2.5						
			12			4.5							
			13							*R-TP03 terminated at 2.60 m.* *Refusal*			
			13										
			12										
			13				3.0						
			16			4.0							
			13										
			9										
			9										
			9				3.5						
						3.5							
							4.0						

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

Engineering Log

Location **R-TP03**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	RAH	**Checked by:**	PJW
Location:	4 Pacific Highway, Wyong	**Start Date:**	20/03/2024	**End Date:**	20/03/2024
Location Description:		**Easting:**	353257.1 m	**RL:**	7.1 m
		Northing:	6315661.2 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56H	**Surface:**	Topsoil



R-TP03_Pit



R-TP03_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. R-TP05**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	13/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	13/12/2023
Location:	Eastern Station Carpark	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353415.6 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316102.8 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	13.1 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.04					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 40 mm thick		D		ROAD SURFACE
					ES_0.04-0.10 BS_0.04-0.14	13.0								PAVEMENT MATERIAL
					BS_0.14-0.40 ES_0.20-0.40					FILL: gravelly SAND: fine to medium grained; pale brown-grey; gravel is fine to medium, angular to sub-angular, igneous, trace plastic fragments		M		
										FILL: sandy GRAVEL: fine to coarse; dark grey; angular; sand is fine to medium grained				
			2							FILL: gravelly CLAY: low to medium plasticity; dark brown-grey and pale grey; gravel is fine, grey and brown, angular to sub-angular, igneous, with sand, fine to medium grained		w>PL		FILL
			2				0.5							
			2			12.5								
			1		BS_0.40-1.10									
			2		ES_0.80-1.00									
							1.0							
						12.0								
					ES_1.10-1.30 BS_1.10-1.30					FILL: sandy CLAY: medium plasticity; dark grey; sand is fine to medium grained, with gravel, fine to coarse, trace brick fragments		w>PL		
LDA	U	NOT ENCOUNTERED							CI-CL	CLAY: low to medium plasticity; pale grey and brown; with sand, fine grained, trace silt		w>PL	F	ALLUVIAL SOIL
							1.5							
					ES_1.50-1.70 BS_1.50-1.70	11.5									
			4											
			2											
			3				2.0							
			12			11.0			CI	CLAY: medium plasticity; pale grey and red-brown		w<PL	H	RESIDUAL SOIL
			15											
			16											
			17											
			21		ES_2.30-2.50 BS_1.90-3.00									
							2.5							
						10.5								
							3.0							
						10.0				*R-TP05 terminated at 3.00 m.* *Target depth*				
							3.5							
						9.5								
							4.0							

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM

Client: TfNSW

Project: WYONG TOWN CENTRE

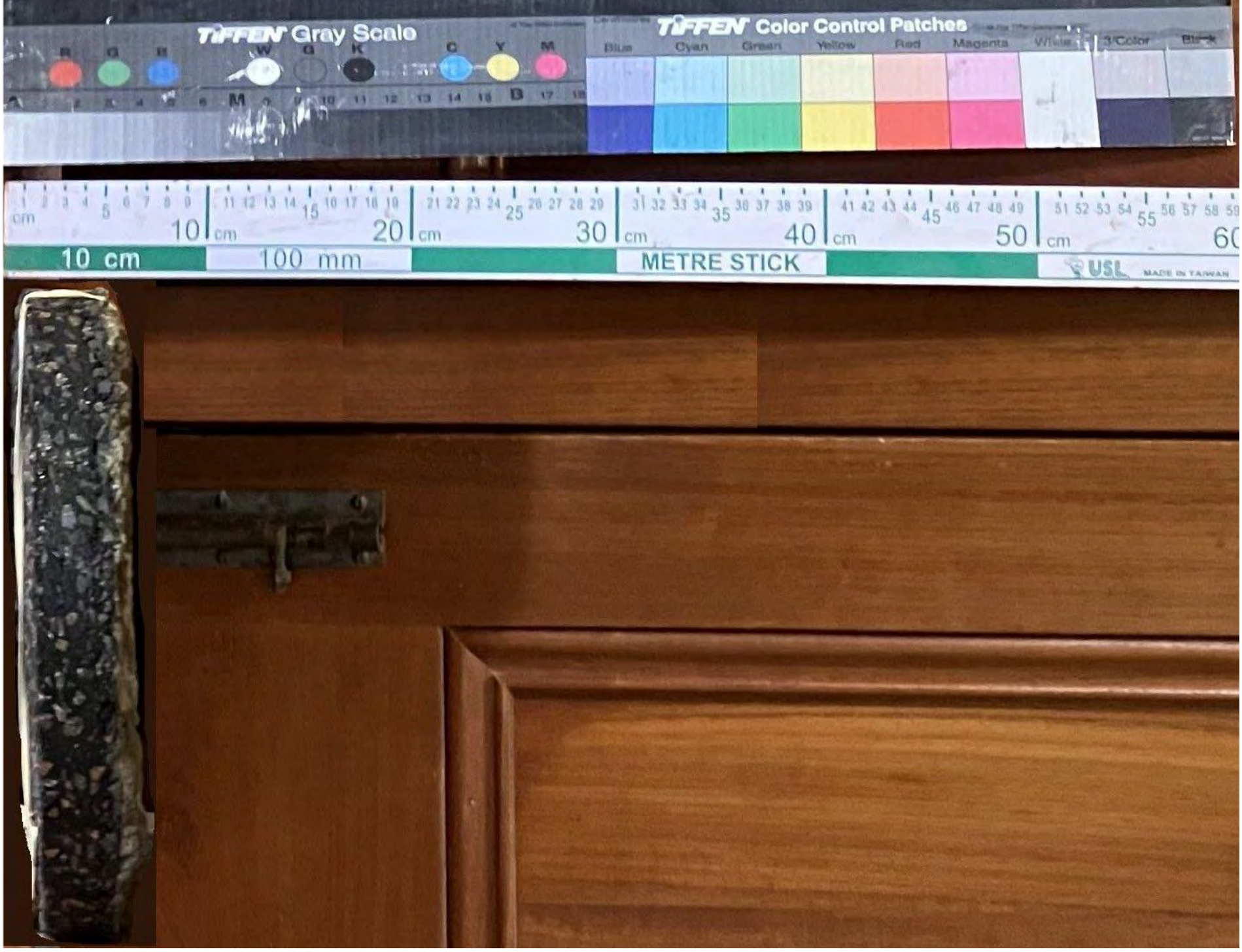
Project Number: 60709736

[illegible]tpit ID: R-TP05

Location:

Depth: 0.00 - 0.04

Date:



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: R-TP05
PROJECT No:	60709736	LEGEND			THICKNESS: 40 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log**

Location **R-TP05**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:** PJW	
Location: Eastern Station Carpark	**Start Date:** 13/12/2023	**End Date:** 13/12/2023	
Location Description:	**Easting:** 353415.6 m	**RL:** 13.1 m	
	Northing: 6316102.8 m	**Ver. Datum:** m AHD	
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:** Pavement (asphalt)	



R-TP05_Pit



R-TP05_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. R-TP06**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	21/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353502.0 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316608.1 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	3.7 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
LDA	U	NOT ENCOUNTERED ▽ 20/3/24	11	PID=1.6	ES_0.00-0.10	3.5	0.5			TOPSOIL: silty SAND: fine to medium grained; brown; with rootlets		M		TOPSOIL
			10							FILL: silty clayey SAND: fine to medium grained; brown-grey; trace fine gravel		M		FILL
			9											
			9	PID=1.5	ES_0.30-0.50									
			12		BS_0.20-0.70									
			8		DS_0.20-0.70									
			8		BS_0.50-1.00									
			8			3.0	1.0			FILL: gravelly CLAY: medium plasticity; brown; gravel is fine, sub-angular		w<PL		
			13											
			13											
			10		BS_0.73-1.45									
			7		DS_0.73-1.45	2.5	1.5		CI	sandy CLAY: medium plasticity; brown; sand is fine grained		w>PL	F- St	ALLUVIAL SOIL
			4											
			4											
			4	PID=0.5										
			3											
			3			2.0	2.0							
			6		BS_1.45-2.10									
			9		DS_1.45-2.10									
			13						CI-CL	sandy CLAY: low to medium plasticity; pale grey mottled yellow-brown; sand is fine to medium grained, with gravel, fine to medium, angular to sub-angular, ironstone		w<PL	H	RESIDUAL SOIL
			17											
			25			1.5	2.5							
			25											
						1.0	3.0			*R-TP06 terminated at 3.00 m.* *Target depth*				
						0.5								
							3.5							
						0.0								
							4.0							

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

Engineering Log

Location R-TP06

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:** PJW	
Location: Apex Park	**Start Date:** 21/03/2024	**End Date:** 21/03/2024	
Location Description:	**Easting:** 353502.0 m	**RL:** 3.7 m	
	Northing: 6316608.1 m	**Ver. Datum:** m AHD	
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:** Topsoil	



R-TP06_Pit



R-TP06_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. R-TP07**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	21/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353525.5 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6316672.4 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	2.9 m
				Ver. Datum:	m AHD
				Surface:	Grass

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
LDA	U	NOT ENCOUNTERED	5	PID=3.7	ES_0.00-0.10 DS_0.00-0.15					TOPSOIL: clayey SAND: fine grained; brown; with silt and rootlets		M		TOPSOIL
			5											
			3							FILL: sandy CLAY: low to medium plasticity; brown; with rootlets		w<PL		FILL
			2	PID=5.8	DS_0.15-0.59	2.5								
			2		ES_0.30-0.50 BS_0.30-0.50		0.5							
			2											
			2						CH	CLAY: high plasticity; pale grey mottled pale brown; with sand, fine grained		w>PL	S- F	ALLUVIAL SOIL
			1		BS_0.59-1.00	2.0	1.0							
			2											
			2											
			2											
			3		DS_0.59-1.90									
			3			1.5								
			9											
			5		BS_1.00-1.90		1.5					w<PL	VSt	
			5											
			6											
			6											
			8			1.0								
			13				2.0		CI	CLAY: medium plasticity; red-brown mottled pale grey		w<PL	H	RESIDUAL SOIL
			12											
			11											
			10											
			12			0.5								
			12				2.5							
			14											
			17											
			18											
			21											
			22 /70			0.0	3.0							
										R-TP07 terminated at 3.00 m. *Target depth*				
						-0.5	3.5							
						-1.0	4.0							

Final

AECOM **Engineering Log**

Location **R-TP07**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:**	PJW
Location: Apex Park	**Start Date:** 21/03/2024	**End Date:**	21/03/2024
Location Description:	**Easting:** 353525.5 m	**RL:**	2.9 m
	Northing: 6316672.4 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Grass



R-TP07_Pit



R-TP07_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM Engineering Log — Final — TEST PIT No. R-TP11

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	19/03/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	19/03/2024
Location:	Apex Park	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Operator:	Durkin	**Dimensions:**	4 x 1 m	**Easting:**	353646.0 m
Plant:	5.5T Kubota U55-4	**Orientation:**		**Northing:**	6316984.9 m
				Hor. Proj/Dat:	MGA94/GDA94-56H
				RL:	4.0 m
				Ver. Datum:	m AHD
				Surface:	Topsoil

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
E	U	NOT ENCOUNTERED	7		ES_0.00-0.10					TOPSOIL: clayey SAND: fine to medium grained; brown; with silt, with gravel, fine, sub-rounded, trace rootlets		M		TOPSOIL
			7									M		FILL
			12							FILL: gravelly clayey SAND: fine to medium grained; dark brown; gravel is fine to coarse, angular to sub-angular, ceramic and concrete				
			11		BS_0.10-0.60									
			15		DS_0.10-0.60									
					ES_0.30-0.50	3.5	0.5							
			16											
			8/25							from 0.60 m, becoming grey, gravel is fine to medium				
					BS_0.60-1.00									
					DS_0.60-1.40	3.0	1.0							
			5											
			4											
			3											
			2			2.5	1.5		Cl	silty CLAY: medium plasticity; pale grey mottled pale brown		w>PL	F- St	ALLUVIAL SOIL
			2											
			3											
			4		BS_1.50-2.00									
			3											
			3			2.0	2.0							
			3		DS_1.40-2.70									
			4											
			6						Cl	sandy CLAY: medium plasticity; pale grey mottled yellow-brown; sand is fine grained		w<PL	VSt	RESIDUAL SOIL
			6											
			8			1.5	2.5							
			11										H	
			11											
			15											
			13		BS_2.70-3.00									
			12			1.0	3.0							
										R-TP11 terminated at 3.00 m. *Target depth*				
						0.5	3.5							
						0.0	4.0							

Final

2020_ANZ_GEO_TESTPIT_WYONG MASTER AECOM GINT.GPJ AECOM_3-01.GDT LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log**

Location **R-TP11**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:** PJW	
Location: Apex Park	**Start Date:** 19/03/2024	**End Date:** 19/03/2024	
Location Description:	**Easting:** 353646.0 m	**RL:** 4.0 m	
	Northing: 6316984.9 m	**Ver. Datum:** m AHD	
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:** Topsoil	



R-TP11_Pit



R-TP11_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. R-TP12**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	03/04/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	03/04/2024
Location:	Pacific Highway Shoulder (Cutler Drive), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353671.5 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6317002.9 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56M
				RL:	3.8 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description		Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure	Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U					3.5	0.5			FILL: ASPHALTIC CONCRETE: black; aggregates up to 15 mm, 55 mm thick			ROAD SURFACE
				PID=0.7	BS_0.055-0.20 ES_0.10-0.20					FILL: clayey SAND: fine to medium grained; dark grey; with gravel, fine, sub-angular, igneous	M		PAVEMENT MATERIAL
			1							FILL: sandy CLAY: medium plasticity; brown mottled grey; with gravel, fine, sub-angular, igneous	w<PL		FILL
			2		BS_0.20-1.00								
			3										
			6			3.0	1.0						
			4										
			3										
LDA	U	NOT ENCOUNTERED	4		ES_1.00-1.10				CL	CLAY: low plasticity; brown-grey; with sand, fine grained	w~PL	St	ALLUVIAL SOIL
			4										
			5								w<PL	St-VSt	
			7			2.5							
			9	PID=1.4	BS_1.00-2.00		1.5						
			10									H	
			10										
			12										
			13			2.0							
			13				2.0						
			17						CI	CLAY: medium plasticity; brown mottled orange-brown and pale brown mottled dark brown	w<PL	H	RESIDUAL SOIL
			19										
			19										
			19			1.5							
			25				2.5						
					BS_2.00-3.00								
						1.0	3.0						
										R-TP12 terminated at 3.00 m. *Target depth*			
						0.5	3.5						
						0.0	4.0						

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: [redacted] R-TP12

Location: PACIFIC HIGHWAY, WYONG NSW

Depth: [redacted]

Date: 03-04-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: R-TP12
PROJECT No:	60709736	LEGEND			THICKNESS: 55 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log**

Location **R-TP12**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736		
Project:	Wyong Town Centre	**Logged by:**	JL	**Checked by:**	PJW
Location:	Pacific Highway Shoulder (Cutler Drive), Wyong	**Start Date:**	3/04/2024	**End Date:**	3/04/2024
Location Description:		**Easting:**	353671.5 m	**RL:**	3.8 m
		Northing:	6317002.9 m	**Ver. Datum:**	m AHD
		Hor. Proj/Dat:	MGA94/GDA94-56M	**Surface:**	Pavement (asphalt)



R-TP12_Pit



R-TP12_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM **Engineering Log** **Final** **LD TEST PIT No. R-TP13**

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/04/2024
Project:	Wyong Town Centre	**Logged by:**	AT	**End Date:**	07/04/2024
Location:	Pacific Highway (7-Eleven), Wyong	**Checked by:**	PJW	**Location Meth.:**	dGPS0.1
Driller:	Durkin	**Hole Diameter:**	240 mm	**Easting:**	353727.6 m
Drill Rig:	Utilicor MPX-SS & V20	**Inclination:**	-90°	**Northing:**	6317130.7 m
		Bearing:	N/A	**Hor. Proj/Dat:**	MGA94/GDA94-56H
				RL:	4.7 m
				Ver. Datum:	m AHD
				Surface:	Pavement (asphalt)

Field Data									Material Description			Soil Condition		Comments
Method	Support	Ground Water	DCP (blows per 100mm)	Field Tests	Samples	Reduced Level (m)	Depth (m)	Graphic Log	Classification Symbol	MATERIAL NAME: plasticity/particle characteristics, colour, secondary and other minor components, structure		Moisture Condition	Density / Consistency	Additional Observations (Geological Unit)
DT	U				ES_0.00-0.10	4.5	0.0			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 30 mm, 220 mm thick				ROAD SURFACE
										FILL: ASPHALTIC CONCRETE: black; aggregates up to 10 mm, 50 mm thick				
										FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 40 mm thick		M		PAVEMENT MATERIAL
				PID=1.4	BS_0.38-0.56 ES_0.40-0.60		0.5			FILL: GRAVEL: medium to coarse; grey; angular to sub-angular; igneous				
			8			4.0			CL	FILL: GRAVEL: fine to coarse; pale grey and yellow-brown; angular to sub-angular; with sand, fine to coarse grained, trace clay and cobbles		w<PL	VSt	ALLUVIAL SOIL
			6	PID=1.7	ES_0.70-0.80					silty sandy CLAY: low plasticity; brown; sand is fine grained, trace fine gravel				
			4		BS_0.56-1.10									
			6				1.0							
			5											
			4			3.5				from 1.10 m to 1.40 m: pale grey, strong hydrocarbon odour				
			5	PID=2.2	ES_1.10-1.30 BS_1.10-1.40									
			6											
			8				1.5		CH	silty CLAY: high plasticity; pale grey mottled yellow-brown; trace fine grained sand		w<PL	H	RESIDUAL SOIL
			9											
			11	PID=2.6	ES_1.50-1.70	3.0								
			12											
			12											
			15		BS_1.40-2.50		2.0							
			19											
			25			2.5								
			25											
							2.5			from 2.50 m: sand is fine to medium grained				
					BS_2.50-3.00	2.0								
							3.0			*R-TP13 terminated at 3.00 m.* *Target depth*				
						1.5								
							3.5							
						1.0								
							4.0							
LDA	U	NOT ENCOUNTERED												

Final

2024_ANZ_GEO_AUGER TEST PIT WYONG MASTER AECOM GINT.GPJ LIBRARY MASTER.GLB 28.11.2024

AECOM

Client: TRANSPORT FOR NSW

Project: WYONG TOWN CENTRE PACIFIC HWY UPGRADE

Project Number: 60709736

Testpit ID: [redacted]R-TP13

Location: PACIFIC HIGHWAY WYONG NSW

Depth: [redacted]

Date: 07-04-2024



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CLIENT:	TfNSW	APPROVED:	PJW	AECOM	TITLE: Pavement Core Photos
PROJECT NAME:	Wyong Town Centre	PHOTO DATE:			PC/BH/LD No: R-TP13
PROJECT No:	60709736	LEGEND			THICKNESS: 280 mm
					PHOTO No. 1 of 1

AECOM **Engineering Log** **Location** **R-TP13**

Sheet: 1 of 1

Client: TfNSW	**Project No:** 60709736		
Project: Wyong Town Centre	**Logged by:** AT	**Checked by:**	PJW
Location: Pacific Highway (7-Eleven), Wyong	**Start Date:** 7/04/2024	**End Date:**	7/04/2024
Location Description:	**Easting:** 353727.6 m	**RL:**	4.7 m
	Northing: 6317130.7 m	**Ver. Datum:**	m AHD
	Hor. Proj/Dat: MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)



R-TP13_Pit



R-TP13_Spoil

OTHER_IMAGES_2_PER_PAGE WYONG MASTER AECOM GINT.GPJ 2016EXAMPLEGINTPROJECTAECOM_2-06 FOR ST REVIEW.GPJ LIBRARY MASTER.GLB 28.11.2024

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MONITORING WELL A-BH02

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	14/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Surface RL:**	2.8 m
Driller:	Terratest	**Easting:**	353191.1 m	**Top of Cas. RL:**	2.8 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315182.3 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	10.30 m	**Hor. Proj/Dat:**	MGA94/GDA94-56M
		Bore Dia.:	118 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick		D	2.8	0.0	0.0 to 0.3 m: Grout
						FILL: gravelly SAND: fine to coarse grained; yellow-brown; gravel is fine to coarse, sub-angular			2.5	0.5	
						FILL: clayey GRAVEL: fine to medium; yellow-brown; sub-rounded to sub-angular; with sand, with frequent rootlets		D			0.3 to 0.8 m: Bentonite
NDD									2.0	1.0	0.0 to 1.3 m: 50 mm Solid Pipe
					CH	CLAY: high plasticity; pale grey	w>PL		1.5	1.5	Standing water level at 1.55 m 10/04/2024
			ES_2.00-2.20						1.0	2.0	Temporary water level at 2.10 m 14/03/2024
			DS_2.40-2.50							2.5	
		8.6	N*_2.50-2.95						0.0	3.0	
			ES_3.10-3.30		SM	silty SAND: fine to medium grained; grey and brown		M			
			DS_3.30-3.50							3.5	
AD/T			U75_3.60-4.00						-1.0	4.0	
		9.8	N*_4.00-4.45		SP	SAND: fine to medium grained; brown-grey; with silt				4.5	
			DS_5.10-5.30						-2.0	5.0	
			N*_5.30-5.75							5.5	0.8 to 10.3 m: Sand
		3.2							-3.0	6.0	0.8 to 10.3 m: 50 mm Well Sleeve
										6.5	1.3 to 10.3 m: 50 mm Slotted Pipe
WB									-4.0	7.0	
			N*_7.05-7.25							7.5	
									-5.0	8.0	

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MONITORING WELL A-BH02

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	14/03/2024
Location:	South Tacoma Road, Tuggerah	**Checked by:**	PJW	**Surface RL:**	2.8 m
Driller:	Terratest	**Easting:**	353191.1 m	**Top of Cas. RL:**	2.8 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315182.3 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	10.30 m	**Hor. Proj/Dat:**	MGA94/GDA94-56M
		Bore Dia.:	118 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
WB		0.9	DS_8.10-8.30 N*_8.30-8.75		MH	sandy SILT: high plasticity; grey	w>PL	8.5	
					SP	SAND: fine to medium grained; grey; with silt	W	-6.0 9.0 9.5	
			N*_9.80-10.25					-7.0 10.0	
						A-BH02 terminated at 10.30 m. Target depth. Standpipe Piezometer Installed.		10.5 -8.0 11.0 11.5 -9.0 12.0 12.5 -10.0 13.0 13.5 -11.0 14.0 14.5 -12.0 15.0 15.5 -13.0 16.0	

Remarks: 9.00 m: 9.00 - 9.45 m: U75 attempted, no recovery

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MONITORING WELL A-BH03A

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	14/12/2023
Location:	200-202 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353169.8 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 205	**Northing:**	6315219.1 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	118 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
AD/T			U75_1.50-1.95			FILL: gravelly SILT: low plasticity; pale brown and dark grey; gravel is fine to medium, sub-angular, igneous, with sand, fine to coarse grained	w<PL	3.0	0.5	0.0 to 0.5 m: Grout
						FILL: CLAY: medium plasticity; dark brown mottled orange; with sand, fine to coarse grained				0.5 to 1.0 m: Bentonite
					CI-CL	CLAY: low to medium plasticity; brown mottled pale yellow	w>PL		1.0	0.0 to 1.2 m: 50 mm Solid Pipe
								2.0	1.5	
									2.0	Standing water level at 2.20 m 11/04/2024
WB					SM	silty SAND: fine to medium grained; grey		1.0	2.5	1.0 to 4.2 m: 50 mm Well Sleeve
									3.0	Standing water level at 2.72 m 20/03/2024
								0.0	3.5	1.2 to 4.2 m: 50 mm Slotted Pipe
									4.0	1.0 to 6.0 m: Sand
								-1.0	4.5	
									5.0	
								-2.0	5.5	
									6.0	
						A-BH03A terminated at 6.00 m. Target depth. Standpipe Piezometer Installed.		-3.0	6.5	
									7.0	
								-4.0	7.5	
									8.0	

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MONITORING WELL A-BH06

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT/RAH	**End Date:**	19/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Surface RL:**	13.5 m
Driller:	Terratest	**Easting:**	353311.0 m	**Top of Cas. RL:**	13.5 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315895.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
	Total Depth: 16.25 m	**Pipe Dia.:**	50 mm		
	Bore Dia.: 96 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT		3.3	DS_0.05-0.40			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick		D			
		3.5	ES_0.40-0.60			FILL: sandy GRAVEL: fine to medium; dark grey; angular to sub-angular; igneous; sand is fine to coarse grained, trace silt, slight organic odour		M	13.0	0.5	
HA						FILL: clayey SAND: fine to medium grained; pale brown-grey and dark grey; with gravel, fine to medium, angular, igneous				1.0	
		4.7	ES_1.00-1.20			FILL: sandy CLAY: medium plasticity; pale grey to pale brown; sand is fine to medium grained		w~PL		1.5	
		0.0	ES_1.50-1.70		CH	CLAY: high plasticity; pale grey mottled dark red; gravel, fine to medium, red-brown, angular to sub-angular, ironstone		w<PL	12.0	2.0	0.0 to 4.0 m: Grout
			DS_2.00-2.45							2.5	0.0 to 5.0 m: 50 mm Solid Pipe
AD/T									11.0	3.0	
		1.7	ES_3.00-3.10							3.5	
			N*_3.50-3.95						10.0	4.0	
			CS_3.95-4.00			CLAYSTONE: pale green-grey and dark red; with iron indurated bands dipping 80°	XW	soil		4.5	4.0 to 4.5 m: Bentonite
			CS_4.48-4.56						9.0	5.0	
						SANDSTONE: fine grained; brown-grey and orange-brown; indistinctly cross bedded at 0-10°, iron stained, rare ironstone flame structures from 5.94 m, becoming pale green-grey and pale orange	XW-HW	VL	8.0	5.5	
HQ3			CS_5.91-6.00							6.0	Standing water level at 5.95 m 04/03/2024
			CS_6.18-6.45							6.5	Temporary water level at 6.50 m 18/12/2023
			CS_6.54-6.64			SANDSTONE: fine grained; pale green-grey and orange-brown; cross-bedded at 0 to 20°; occasional ironstone laminations up to 6 mm thick	HW	VL-L	7.0	7.0	4.5 to 8.0 m: 50 mm Well Sleeve; 5.0 to 8.0 m: 50 mm Slotted Pipe
										7.5	Standing water level at 7.17 m 10/04/2024; 4.5 to 10.0 m: Sand
			CS_7.47-7.58						6.0		
							XW	soil		8.0	

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MONITORING WELL A-BH06

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT/RAH	**End Date:**	19/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Surface RL:**	13.5 m
Driller:	Terratest	**Easting:**	353311.0 m	**Top of Cas. RL:**	13.5 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315895.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	16.25 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
						SANDSTONE: fine grained; pale green-grey and orange-brown; cross-bedded at 0 to 20°; occasional ironstone laminations up to 6 mm thick		HW	VL-L	5.0	8.5	
			CS_8.77-8.84					XW	soil			
								HW	VL-L		9.0	
								XW	soil	4.0	9.5	
						from 9.75 m to 9.79 m: carbonaceous laminations		HW	VL-L			
			CS_9.84-9.97					XW	soil		10.0	
								HW	VL-L			
								XW	soil	3.0	10.5	
								HW	VL-L			
			CS_10.89-11.00								11.0	
			CS_11.00-11.10									
										2.0	11.5	
HQ3						CLAYSTONE: dark red-brown		XW	VL		12.0	
			CS_12.08-12.15									
										1.0	12.5	
											13.0	10.0 to 16.3 m: Bentonite
			CS_13.37-13.47			from 13.50 m to 13.76 m: pale grey bands up to 40 mm thick				0.0	13.5	
											14.0	
			CS_14.28-14.35									
										-1.0	14.5	
											15.0	
			CS_15.07-15.30			from 15.20 m: rare pale grey flecks						
										-2.0	15.5	
			CS_15.74-15.83								16.0	

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MONITORING WELL A-BH06

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	14/12/2023
Project:	Wyong Town Centre	**Logged by:**	AT/RAH	**End Date:**	19/12/2023
Location:	Railway Square, Wyong	**Checked by:**	PJW	**Surface RL:**	13.5 m
Driller:	Terratest	**Easting:**	353311.0 m	**Top of Cas. RL:**	13.5 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315895.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	16.25 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
HQ3	●		CS_16.05-16.16			CLAYSTONE: dark red-brown from 16.09 m to 16.25 m: pale grey bands	XW	VL		
						A-BH06 terminated at 16.25 m. Terminated due to equipment failure			16.5 / -3.0 17.0 17.5 / -4.0 18.0 18.5 / -5.0 19.0 19.5 / -6.0 20.0 20.5 / -7.0 21.0 21.5 / -8.0 22.0 22.5 / -9.0 23.0 23.5 / -10.0 24.0	

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MONITORING WELL A-BH09

Sheet: 1 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA/GB	**End Date:**	06/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Surface RL:**	14.6 m
Driller:	Terratest	**Easting:**	353356.8 m	**Top of Cas. RL:**	14.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316066.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Total Depth:	27.24 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	96 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT		9.8	ES_0.10-0.20			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 10 mm, 35 mm thick	D		14.6	0.0	0.0 to 0.3 m: Grout
		10.1	ES_0.50-0.60			FILL: gravelly SAND: fine to coarse grained; pale brown; gravel is fine to coarse, sub-rounded to sub-angular, igneous, trace clay	w~PL		14.0	0.5	
HA						FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to coarse, sub-rounded to sub-angular, igneous				1.0	
			DS_1.10-1.40		CH	FILL: CLAY: high plasticity; brown-grey	w<PL			1.5	
			N*_1.50-1.95			FILL: sandy CLAY: medium to high plasticity; brown; sand is fine to coarse grained			13.0	2.0	
			ES_2.00-3.00			CLAY: high plasticity; red mottled grey; with sand, fine to medium grained; with gravel, medium to coarse, sub-rounded to sub-angular, ironstone				2.5	0.3 to 5.0 m: Sand
			N*_3.00-3.45		CH	sandy CLAY: high plasticity; pale grey; sand is fine to coarse grained; with gravel, orange-brown and dark red, angular to sub-angular, ironstone and sandstone	w<PL		12.0	3.0	
AD/T			DS_3.50-4.00							3.5	
			N*_4.50-4.95						11.0	4.0	
			DS_5.50-6.00							4.5	0.0 to 9.0 m: 50 mm Solid Pipe
			N*_6.00-6.45						10.0	5.0	
			CS_6.53-6.64			CLAYSTONE: pale grey; with iron indurated sandstone bands, up to 200 mm thick	XW	soil	9.0	5.5	
HQ3										6.0	
			CS_7.62-7.76			SANDSTONE: fine grained; pale grey and pale yellow-brown; cross-bedded at 10-20°, spaced 5-15 mm; iron stained	HW	VL	8.0	6.5	5.0 to 8.1 m: Bentonite
									7.0	7.0	
										7.5	
										8.0	

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MONITORING WELL A-BH09

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA/GB	**End Date:**	06/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Surface RL:**	14.6 m
Driller:	Terratest	**Easting:**	353356.8 m	**Top of Cas. RL:**	14.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316066.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	27.24 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HQ3						SANDSTONE: fine grained; pale grey and pale yellow-brown; cross-bedded at 10-20°, spaced 5-15 mm; iron stained		HW	VL	6.0	8.5	
			CS_8.50-8.62								9.0	Standing water level at 8.95 m 08/03/2024
			CS_9.40-9.70							5.0	9.5	Temporary water level at 9.22 m 11/12/2023
			CS_9.80-9.90								10.0	
			CS_10.67-10.82						VL-L	4.0	10.5	
			CS_11.62-11.77								11.0	
			CS_12.39-12.50							3.0	11.5	
			CS_12.70-13.00								12.0	
								XW	soil		12.5	
								HW	VL-L	2.0	13.0	
			CS_13.47-13.60			CLAYSTONE: dark red-brown		MW	VL		13.5	
										1.0	14.0	
			CS_14.62-14.75								14.5	
										0.0	15.0	
			CS_15.64-15.78			from 15.83 m: sandstone bands, fine to				-1.0	15.5	
											16.0	

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MONITORING WELL A-BH09

Sheet: 3 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA/GB	**End Date:**	06/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Surface RL:**	14.6 m
Driller:	Terratest	**Easting:**	353356.8 m	**Top of Cas. RL:**	14.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316066.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	27.24 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture: Weathering	Moisture: Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
						medium grained, up to 40 mm thick, spaced 40-400 mm CLAYSTONE: dark red-brown	MW	VL	16.5	-2.0	
						SANDSTONE: fine to medium grained; pale grey; indistinctly cross-bedded at 0° from 17.16 m to 17.59 m: rare claystone bands, dark red-brown, up to 30mm thick, spaced 50-150 mm	SW	VL-L	17.0		
			CS_17.71-17.83						17.5	-3.0	8.1 to 27.2 m: Sand 8.1 to 27.2 m: 50 mm Well Sleeve
									18.0		9.0 to 27.2 m: 50 mm Slotted Pipe
							XW	soil	18.5	-4.0	
							SW	VL-L	19.0		
			CS_19.29-19.41				FR	H	19.5	-5.0	
HQ3									20.0		
			CS_20.17-20.27						20.5	-6.0	
									21.0		
			CS_21.19-21.29						21.5	-7.0	
									22.0		
						SANDSTONE: fine to coarse grained; pale grey; occasional claystone lenses and inclusions, 10-60 mm	XW	soil	22.5	-8.0	
			CS_22.63-22.72				FR	M	23.0		
									23.5	-9.0	
			CS_23.67-23.76						24.0		

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MONITORING WELL A-BH09

Sheet: 4 of 4

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/12/2023
Project:	Wyong Town Centre	**Logged by:**	DA/GB	**End Date:**	06/12/2023
Location:	Western Station Carpark	**Checked by:**	PJW	**Surface RL:**	14.6 m
Driller:	Terratest	**Easting:**	353356.8 m	**Top of Cas. RL:**	14.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316066.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	27.24 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture: Weathering	Moisture: Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
						from 24.04 m: occasional iron staining	FR	M		
						SANDSTONE: fine to medium grained; pale grey; cross-bedded at 0-15°, spaced 1-5 mm	HW	VL	24.5 / -10.0 / 25.0	
			CS_24.70-24.81							
						SANDSTONE: fine to coarse grained; pale grey; cross-bedded at 0-15°, spaced 1-15 mm	FR	M-H	25.5 / -11.0 / 26.0	
			CS_25.79-25.92							
			CS_26.03-26.10			from 26.11 m: cross bedded at 5-15°, spaced 2-10mm			26.5 / -12.0 / 27.0	
						CLAYSTONE: dark red-brown	MW-SW	L		
			CS_27.04-27.14							
						A-BH09 terminated at 27.24 m. Target depth. Standpipe Piezometer Installed.			27.5 / -13.0 / 28.0 / 28.5 / -14.0 / 29.0 / 29.5 / -15.0 / 30.0 / 30.5 / -16.0 / 31.0 / 31.5 / -17.0 / 32.0	

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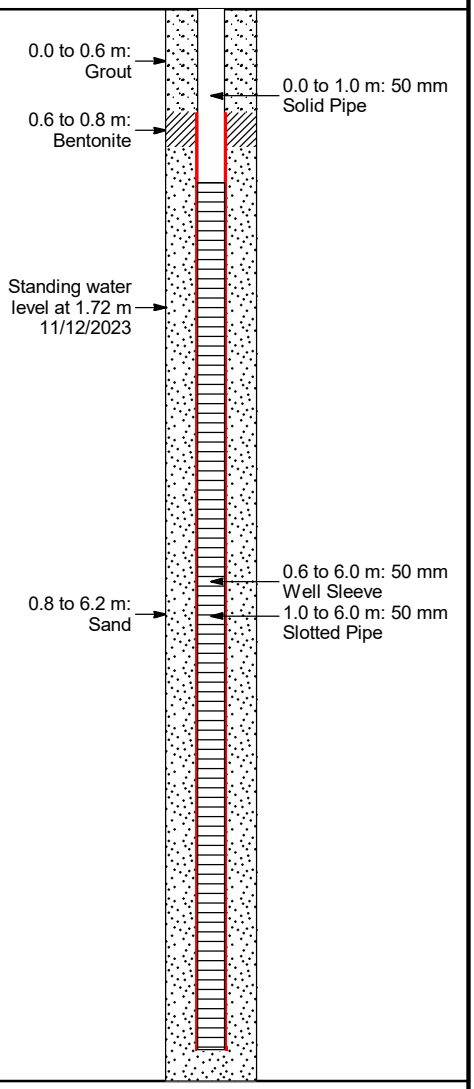
MONITORING WELL A-BH13

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	01/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	01/12/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Surface RL:**	4.9 m
Driller:	Terratest	**Easting:**	353544.8 m	**Top of Cas. RL:**	4.9 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316578.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.18 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)
		3.4	ES_0.00-0.20			TOPSOIL: silty CLAY: low to medium plasticity; dark brown-grey	w~PL	4.9 / 0.0
			DS_0.00-1.00			FILL: silty CLAY: low to medium plasticity; orange-brown	w<PL	0.5
		6.2	ES_1.00-1.20					4.0 / 1.0
			DS_1.00-2.00					1.5
			N*_1.50-1.95					3.0 / 2.0
		17.8	ES_2.00-2.20					
			DS_2.00-3.00		CH	silty CLAY: high plasticity; dark brown-grey; slight estuarine odour	w>PL	2.5
AD/T		13.9	ES_3.00-3.20					2.0 / 3.0
			N*_3.20-3.45					3.5
					CH	silty CLAY: high plasticity; pale grey	w~PL	1.0 / 4.0
			N*_4.50-4.95					4.5
								0.0 / 5.0
								5.5
			N*_6.00-6.18		CH	sandy CLAY: high plasticity; pale blue-grey; sand is fine grained		-1.0 / 6.0
						A-BH13 terminated at 6.18 m. Target depth. Standpipe Piezometer Installed.		6.5
								-2.0 / 7.0
								7.5
								-3.0 / 8.0

WELL CONSTRUCTION DETAILS



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MONITORING WELL A-BH14

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	01/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	01/12/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Surface RL:**	4.1 m
Driller:	Terratest	**Easting:**	353583.5 m	**Top of Cas. RL:**	4.1 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316674.0 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.18 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
		5.8	ES_0.00-0.10			TOPSOIL: silty CLAY: low to medium plasticity; dark brown-grey	w~PL	4.0 / 0.0	0.0 to 0.5 m: Grout
						FILL: silty CLAY: low plasticity; dark brown-grey	w<PL		
			DS_0.00-1.00					0.5	0.0 to 1.0 m: 50 mm Solid Pipe
									0.6 to 0.8 m: Bentonite
		5.2	ES_1.00-1.20					3.0 / 1.0	
									Standing water level at 1.23 m 11/12/2023
			DS_1.00-2.00			FILL: silty CLAY: low to medium plasticity; pale grey mottled orange-brown	w~PL	1.5	
			N*_1.50-1.95						
		7.5	ES_2.00-2.20					2.0 / 2.0	
			ES_2.20-2.40						
			DS_2.00-3.00					2.5	
					CH	silty CLAY: high plasticity; pale grey; slight estuarine odour	w~PL	3.0 / 1.0	
AD/T		11.8	ES_3.00-3.20						0.6 to 6.0 m: 50 mm Well Sleeve
			N*_3.00-3.45					3.5	0.8 to 6.2 m: Sand
									1.0 to 6.0 m: 50 mm Slotted Pipe
								4.0 / 0.0	
					CH	silty CLAY: high plasticity; pale orange-brown	w<PL	4.5	
			N*_4.50-4.95					5.0 / -1.0	
								5.5	
			N*_6.00-6.18					6.0 / -2.0	
						A-BH14 terminated at 6.18 m. Target depth. Standpipe Piezometer Installed.		6.5	
								7.0 / -3.0	
								7.5	
								8.0	

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MONITORING WELL A-BH15

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/11/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	27/11/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Surface RL:**	3.3 m
Driller:	Terratest	**Easting:**	353628.4 m	**Top of Cas. RL:**	3.3 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316794.9 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.16 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
			ES_0.10-0.20			FILL: silty GRAVEL: fine to medium; dark grey; angular; igneous (ballast), with organic matter	M	3.0 / 0.5	0.0 to 0.6 m: Grout Standing water level at 0.44 m 11/12/2023 0.6 to 0.8 m: Bentonite 0.0 to 1.0 m: 50 mm Solid Pipe
		14.0	ES_0.30-0.40			FILL: silty CLAY: low to medium plasticity; pale brown to brown	w<PL		
		13.0	DS_0.10-1.00					2.0 / 1.0	
			N*_1.50-1.95		CI-CL	silty CLAY: low to medium plasticity; dark brown-grey	w>PL	1.0 / 2.0	
			DS_2.00-3.00 DS_2.50-2.70		CI-CL	silty CLAY: low to medium plasticity; pale brown to grey			Temporary water level at 3.00 m 27/11/2023
AD/T			ES_3.00-3.05 ES_3.10-3.15 N*_3.00-3.45					0.0 / 3.0	0.6 to 6.0 m: 50 mm Well Sleeve 0.8 to 6.2 m: Sand 1.0 to 6.0 m: 50 mm Slotted Pipe
					CH-CI	silty CLAY: medium to high plasticity; pale grey mottled red-brown	w<PL		
					CH-CI	CLAY: medium to high plasticity; pale brown to red-brown		-1.0 / 4.0	
			N*_4.50-4.95						Temporary water level at 5.00 m 27/11/2023
			N* 6.00-6.16					-2.0 / 5.0	
						A-BH15 terminated at 6.16 m. Target depth. Standpipe Piezometer Installed.		-3.0 / 6.0	
								-4.0 / 7.0	

Remarks: 3.00 m: possible perched water

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MONITORING WELL A-BH16

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/11/2023
Project:	Wyong Town Centre	**Logged by:**	DA	**End Date:**	27/11/2023
Location:	Rail Corridor north of Wyong Station	**Checked by:**	PJW	**Surface RL:**	3.2 m
Driller:	Terratest	**Easting:**	353672.0 m	**Top of Cas. RL:**	3.2 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316913.1 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.45 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
NDD			DS_0.20-0.30			FILL: gravelly CLAY: medium to high plasticity; dark grey; gravel is fine to coarse, sub-angular, igneous (ballast), with rootlets	w<PL	3.0 / 0.5	0.0 to 0.6 m: Grout Standing water level at 0.49 m 11/12/2023 0.6 to 0.8 m: Bentonite 0.0 to 1.0 m: 50 mm Solid Pipe
						FILL: CLAY: high plasticity; brown-grey; with gravel, fine to coarse, sub-angular, igneous (ballast)		1.0	
					CH	CLAY: high plasticity; dark grey to grey mottled pale orange from 1.30 m: becoming grey	w~PL	2.0 / 1.5	
			N*_1.50-1.95					2.0 / 1.0	
								2.5	
					CH-Cl	silty CLAY: medium to high plasticity; pale grey mottled yellow-brown; trace fine grained sand		3.0 / 0.0	
			N*_3.00-3.45					3.5	0.6 to 6.0 m: 50 mm Well Sleeve 1.0 to 6.0 m: 50 mm Slotted Pipe 0.8 to 6.5 m: Sand
AD/T								4.0 / -1.0	Temporary water level at 4.00 m 27/11/2023
			DS_4.20-4.50					4.5	
			N*_4.50-4.95					5.0 / -2.0	
								5.5	
					CH-Cl	CLAY: medium to high plasticity; pale grey mottled orange	w<PL	6.0 / -3.0	
			N*_6.00-6.45					6.5	
						A-BH16 terminated at 6.45 m. *Target depth. Standpipe Piezometer Installed.*		7.0 / -4.0	
								7.5	
								8.0	

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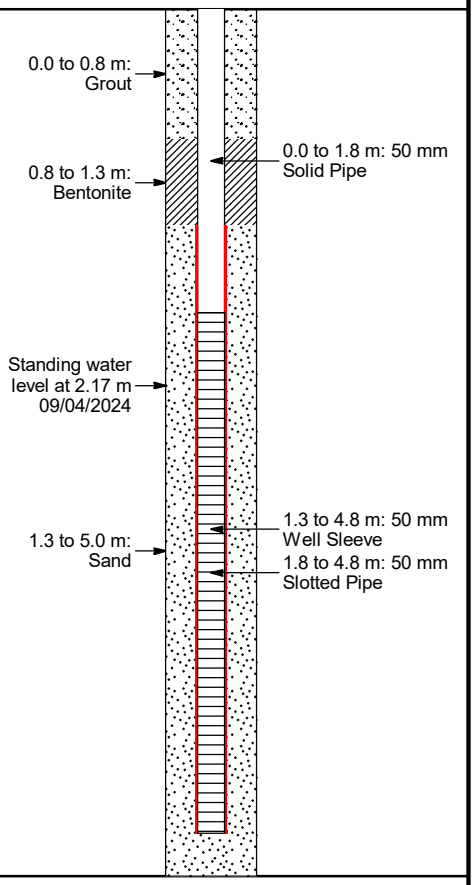
MONITORING WELL A-BH17

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	05/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/KH	**End Date:**	05/03/2024
Location:	River Road, Wyong	**Checked by:**	PJW	**Surface RL:**	2.8 m
Driller:	Terratest	**Easting:**	353220.8 m	**Top of Cas. RL:**	2.8 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315687.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	5.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (seal)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)
DT			ES_0.00-0.05			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 15 mm thick	D				
HA			ES_0.50-0.60			FILL: sandy GRAVEL: fine to medium; pale brown; sub-rounded to sub-angular; sand is fine to medium grained				0.5	
						FILL: clayey SAND: fine to medium grained; brown; trace fine gravel	D				
AD/T			ES_0.90-1.00 ES_1.00-1.10		CI	sandy CLAY: medium plasticity; brown-grey; sand is fine to medium grained	w<PL			2.0	1.0
						CLAYSTONE: pale brown	w<PL				1.5
						NO CORE: 1.52 to 1.67 m					
			CS_1.67-1.74			SANDSTONE: fine grained; brown; iron stained	MW	L		1.0	2.0
			CS_2.00-2.30					M			
			CS_2.41-2.51							0.0	2.5
								M-H			3.0
HQ3						NO CORE: 3.18 to 3.72 m					3.5
						SANDSTONE: fine grained; brown; iron stained from 4.00 m: indistinctly laminated 0-10°	MW	M		-1.0	4.0
			CS_4.35-4.48				XW	soil			4.5
							MW	VL-L		-2.0	5.0
						A-BH17 terminated at 5.00 m. Target depth. Standpipe Piezometer Installed.					
										-3.0	5.5
											6.0
											6.5
										-4.0	7.0
											7.5
										-5.0	8.0

WELL CONSTRUCTION DETAILS



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MONITORING WELL ACM-BH09

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/12/2023
Project:	Wyong Town Centre	**Logged by:**	GB	**End Date:**	07/12/2023
Location:	Rose Street Carpark	**Checked by:**	PJW	**Surface RL:**	9.9 m
Driller:	Terratest	**Easting:**	353519.9 m	**Top of Cas. RL:**	9.9 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316155.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	9.54 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (seal)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)
DT						FILL: BITUMINOUS SEAL: dark grey; aggregates up to 20 mm, 30 mm thick		D		
NDD						FILL: sandy GRAVEL: fine; grey; angular; igneous; sand is fine to coarse grained				0.5
						FILL: sandy GRAVEL: fine to medium; grey to dark grey; angular; igneous, sand is fine to coarse grained		w<PL		
		6.2	ES_0.60-0.70						9.0	1.0
HA		7.7	ES_1.00-1.10			FILL: CLAY: medium to high plasticity; brown mottled grey and red; with sand, fine to coarse grained, trace fine to medium igneous gravel, slight earthy odour				
		14.3	ES_1.20-1.30			FILL: CLAY: medium plasticity; brown-grey; with sand, fine to coarse grained, trace fine to medium gravel from 1.50 m to 1.80 m: trace timber fragments				1.5
		17.6	ES_1.50-1.60					w~PL	8.0	2.0
			DS_1.90-2.00		CI	CLAY: medium plasticity; pale grey mottled orange; with sand, fine grained, slight petroleum odour				
		18.4	ES_2.00-2.10							
			N*_2.10-2.45							2.5
AD/T										
		11.1	ES_2.90-3.00						7.0	3.0
			N*_3.00-3.14			SANDSTONE: fine to medium grained; orange-brown; extremely weathered, soil strength		D		
						SANDSTONE: fine to medium grained; pale grey and orange; indistinctly bedded; iron stained from 3.66 m to 3.89 m: iron cemented band	HW	VL		3.5
			CS_3.90-4.00						6.0	4.0
			CS_4.00-4.30							
						CLAYSTONE: red-brown; indistinctly bedded	XW	soil		4.5
							HW-MW	VL		
			CS_4.90-5.00						5.0	5.0
										5.5
HQ3										
			CS_5.90-6.00						4.0	6.0
										6.5
			CS_6.90-7.00						3.0	7.0
										7.5
			CS_7.81-7.91						2.0	8.0

WELL CONSTRUCTION DETAILS

- 0.0 to 0.2 m: Grout
- 0.2 to 2.0 m: Bentonite
- 0.0 to 2.0 m: 50 mm Solid Pipe
- Standing water level at 3.35 m 08/03/2024
- Standing water level at 3.66 m 11/12/2023
- 1.5 to 8.0 m: 50 mm Well Sleeve
- 2.0 to 8.0 m: 50 mm Slotted Pipe
- 2.0 to 9.5 m: Sand

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MONITORING WELL ACM-BH09

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	07/12/2023
Project:	Wyong Town Centre	**Logged by:**	GB	**End Date:**	07/12/2023
Location:	Rose Street Carpark	**Checked by:**	PJW	**Surface RL:**	9.9 m
Driller:	Terratest	**Easting:**	353519.9 m	**Top of Cas. RL:**	9.9 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316155.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	9.54 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (seal)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HQ3			CS_8.58-8.72			CLAYSTONE: red-brown; indistinctly bedded		HW MW	EL VL	8.5		
			CS_9.00-9.30			SANDSTONE: fine to medium grained; pale grey; cross-bedded at 0-5°; with iron staining, rare carbonaceous laminations and iron cemented bands up to 50 mm thick				1.0	9.0	
			CS_9.44-9.54								9.5	
						ACM-BH09 terminated at 9.54 m. Target depth. Standpipe Piezometer Installed.				0.0	10.0	
											10.5	
										-1.0	11.0	
											11.5	
										-2.0	12.0	
											12.5	
										-3.0	13.0	
											13.5	
										-4.0	14.0	
											14.5	
										-5.0	15.0	
											15.5	
										-6.0	16.0	

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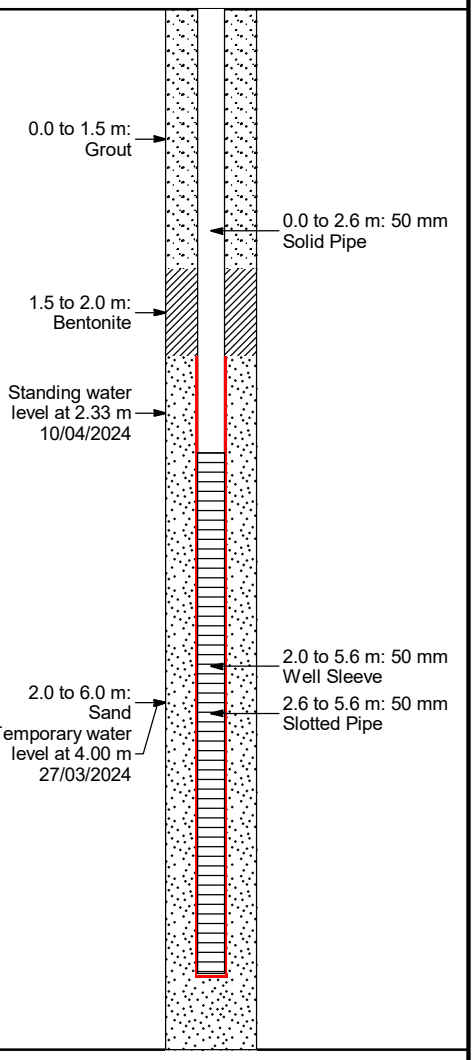
MONITORING WELL BH01A/GW01A

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	27/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL/ES	**End Date:**	27/03/2024
Location:	Pacific Highway (Ampol), Tuggerah	**Checked by:**	PJW	**Surface RL:**	3.6 m
Driller:	Terratest	**Easting:**	353146.8 m	**Top of Cas. RL:**	3.6 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315010.7 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)
DT			ES_0.10-0.20			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 80 mm thick	M			3.0	0.5
						FILL: sandy GRAVEL: fine to medium; grey; angular; sand is fine to coarse grained, weakly cemented					
HA					CI-CL	silty CLAY: low to medium plasticity; pale brown to brown	w>PL				1.0
		1.3	ES_1.10-1.20								1.5
			ES_1.35-1.45							2.0	
		1.8	ES_2.00-2.10								2.0
			N*_2.50-2.80								2.5
		1.4	ES_2.80-2.90							1.0	
					SC	clayey SAND: fine to medium grained; grey to dark grey	W				3.0
AD/T		0.7	ES_3.80-3.90								3.5
			N*_4.00-4.45							0.0	4.0
											4.5
					CI-CL	sandy CLAY: low to medium plasticity; grey mottled brown; sand is fine grained	w>PL			-1.0	5.0
			N*_5.50-5.95								5.5
										-2.0	6.0
						BH01A/GW01A terminated at 6.00 m. Target depth. Standpipe Piezometer Installed.					6.5
										-3.0	7.0
											7.5
										-4.0	8.0

WELL CONSTRUCTION DETAILS



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MONITORING WELL BH26/GW26

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	24/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	24/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Surface RL:**	8.9 m
Driller:	Terratest	**Easting:**	353410.5 m	**Top of Cas. RL:**	8.9 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316324.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (seal)
Total Depth:	10.00 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	125 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT		65.4	ES_0.10-0.20			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 15 mm, 50 mm thick	M			
						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick				
		0.9	ES_0.40-0.50			FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to medium, sub-angular, igneous	M		0.5	
			DS_0.40-0.90							
HA		5.1	ES_0.80-0.90		CI-CL	FILL: SAND: fine to medium grained; dark brown mottled dark grey; with gravel, fine, sub-angular, igneous	w>PL	8.0	1.0	
		18.2	ES_1.10-1.20			CLAY: low to medium plasticity; brown mottled grey; with sand, fine to medium grained			1.5	0.0 to 3.0 m: Grout
			N*_1.20-1.45							
		21.8	ES_1.50-1.60					7.0	2.0	
					CH-CI	CLAY: medium to high plasticity; red mottled grey	w<PL			
		27.1	ES_2.40-2.50						2.5	Standing water level at 2.50 m 11/04/2024
			N*_2.50-2.95					6.0	3.0	0.0 to 6.1 m: 50 mm Solid Pipe
										3.0 to 3.5 m: Bentonite
		30.4	ES_3.40-3.50						3.5	
			DS_3.50-4.00					5.0	4.0	
						CLAYSTONE: dark red-brown; extremely weathered, soil strength	D			
			N*_4.00-4.45						4.5	
		17.2	ES_4.50-4.60					4.0	5.0	
AD/T										
		7.5	ES_5.40-5.50						5.5	
								3.0	6.0	
									6.5	3.5 to 10.0 m: Sand
								2.0	7.0	
									7.5	5.9 to 9.1 m: 50 mm Well Sleeve
								1.0	8.0	6.1 to 9.1 m: 50 mm Slotted Pipe

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MONITORING WELL BH26/GW26

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	24/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	24/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Surface RL:**	8.9 m
Driller:	Terratest	**Easting:**	353410.5 m	**Top of Cas. RL:**	8.9 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316324.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	10.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (seal)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
AD/T						CLAYSTONE: dark red-brown; extremely weathered, soil strength from 8.50 m, becoming pale brown	D	8.5 0.0 9.0 9.5 -1.0 10.0	
						BH26/GW26 terminated at 10.00 m. Target depth. Standpipe Piezometer Installed.		10.5 -2.0 11.0 11.5 -3.0 12.0 12.5 -4.0 13.0 13.5 -5.0 14.0 14.5 -6.0 15.0 15.5 -7.0 16.0	

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MONITORING WELL BH27/GW27

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	25/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	25/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Surface RL:**	5.2 m
Driller:	Terratest	**Easting:**	353438.6 m	**Top of Cas. RL:**	5.2 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316399.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	3.50 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (seal)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 20 mm thick	D	5.0 / 0.0	0.0 to 0.2 m: Grout; 0.0 to 0.5 m: 50 mm Solid Pipe
						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 65 mm thick			
						FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to medium, sub-angular, igneous			0.2 to 0.4 m: Bentonite
		1.6	ES_0.30-0.40			FILL: sandy CLAY: low to medium plasticity; pale brown; with gravel, fine, sub-angular, igneous	w~PL	4.5 / 0.5	
			DS_0.40-0.75						
HA		1.1	ES_0.80-0.90		CI-CL	CLAY: low to medium plasticity; dark brown; trace fine grained sand, trace rootlets	w>PL	4.0 / 1.0	Temporary water level at 0.98 m 25/03/2024
		1.7	ES_1.30-1.40					3.5 / 1.5	
			N*_1.50-1.95						
					CH-CL	CLAY: medium to high plasticity; pale brown		3.0 / 2.0	0.2 to 3.5 m: 50 mm Well Sleeve; 0.4 to 3.5 m: Sand; 0.5 to 3.5 m: 50 mm Slotted Pipe
		6.8	ES_2.30-2.40					2.5 / 2.5	
AD/T			N*_2.50-2.95					2.0 / 3.0	
						BH27/GW27 terminated at 3.50 m. Target depth. Standpipe Piezometer Installed.		1.5 / 3.5	
								4.0	

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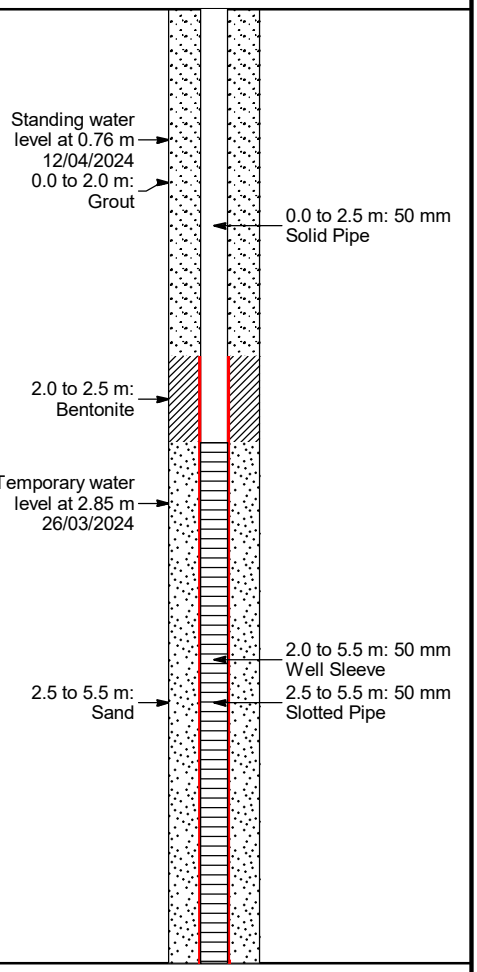
MONITORING WELL BH28/GW28

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	26/03/2024
Location:	Pacific Highway Shoulder (Aldi), Wyong	**Checked by:**	PJW	**Surface RL:**	4.3 m
Driller:	Terratest	**Easting:**	353461.1 m	**Top of Cas. RL:**	4.3 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316458.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	5.50 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)
DT		25.1	ES_0.04-0.20			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	w<PL		4.0	0.5
		9.1	DS_0.20-0.45 ES_0.30-0.40			FILL: gravelly CLAY: low plasticity; grey to dark grey; gravel is fine to coarse, sub-angular, igneous, with sand, fine to coarse grained	w<PL			
HA		4.3	ES_0.80-0.90			FILL: CLAY: high plasticity; red-brown; with sand, fine grained				1.0
			N*_1.00-1.30		CH-CI	CLAY: medium to high plasticity; dark brown; trace fine grained sand	w>PL		3.0	1.5
		0.5	ES_1.30-1.40							
			U75_1.50-1.95							2.0
			N*_2.50-2.80						2.0	2.5
		6.5	ES_2.80-2.90		CH-CI	CLAY: medium to high plasticity; grey mottled brown; trace fine grained sand	w~PL			3.0
AD/T			DS_3.50-4.00						1.0	3.5
			N*_4.00-4.45							4.0
									0.0	4.5
										5.0
									-1.0	5.5
						BH28/GW28 terminated at 5.50 m. Target depth. Standpipe Piezometer Installed.				6.0
									-2.0	6.5
										7.0
									-3.0	7.5
										8.0

WELL CONSTRUCTION DETAILS



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MONITORING WELL BH29/GW29

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	26/03/2024
Location:	North Road, Wyong	**Checked by:**	PJW	**Surface RL:**	4.7 m
Driller:	Terratest	**Easting:**	353451.7 m	**Top of Cas. RL:**	4.7 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316510.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Total Depth:	6.00 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	125 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT			ES_0.08-0.20			FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	M		4.7	0.0	
					CH-CI	FILL: clayey GRAVEL: fine to coarse; grey to dark grey; sub-angular; igneous, with sand, fine to coarse grained	w>PL		4.0	0.5	
			ES_0.40-0.50			CLAY: medium to high plasticity; brown mottled grey; trace fine grained sand					
HA										1.0	0.0 to 2.0 m: Grout
			N*_1.00-1.20								
			ES_1.20-1.30							1.5	Standing water level at 1.55 m 12/04/2024
			ES_1.70-1.80						3.0	2.0	0.0 to 3.2 m: 50 mm Solid Pipe
											2.0 to 2.5 m: Bentonite
					CH	CLAY: high plasticity; red-brown mottled grey; trace fine grained sand	w<PL			2.5	
			N*_2.50-2.95						2.0		
			ES_2.80-2.90							3.0	
AD/T										3.5	Temporary water level at 3.75 m 26/03/2024
					CH-CI	sandy CLAY: medium to high plasticity; brown mottled grey; sand is fine grained			1.0	4.0	
			N*_4.00-4.45								2.5 to 6.0 m: Sand
										4.5	2.8 to 6.0 m: 50 mm Well Sleeve
									0.0		3.2 to 6.0 m: 50 mm Slotted Pipe
			DS_5.00-5.50							5.0	
			N*_5.50-5.95						-1.0	5.5	
										6.0	
						BH29/GW29 terminated at 6.00 m. Target depth. Standpipe Piezometer Installed.					
									-2.0	6.5	
										7.0	
									-3.0	7.5	
										8.0	

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MONITORING WELL BH30

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	17/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	17/03/2024
Location:	Anzac Avenue, Wyong	**Checked by:**	PJW	**Surface RL:**	10.0 m
Driller:	Terratest	**Easting:**	353376.9 m	**Top of Cas. RL:**	10.0 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316308.0 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Total Depth:	6.00 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	125 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 160 mm thick				
			ES_0.15-0.35			FILL: clayey SAND: fine to medium grained; pale yellow-brown; with gravel, fine, sub-angular, igneous	M w<PL			
			ES_0.40-0.50 DS_0.35-0.70						0.5	
HA					CH-CI	FILL: CLAY: medium to high plasticity; brown; with sand, fine to medium grained, trace fine igneous gravel	w~PL			0.0 to 1.6 m: Grout
			ES_0.90-1.00 DS_0.70-1.50			CLAY: medium to high plasticity; orange-brown; with sand, fine grained		9.0	1.0	
									1.5	Standing water level at 1.37 m 10/04/2024
					CH-CI	CLAY: medium to high plasticity; red-brown and grey	w<PL			0.0 to 2.6 m: 50 mm Solid Pipe
			N*_1.50-1.95							1.6 to 2.1 m: Bentonite
			ES_2.00-2.10					8.0	2.0	
									2.5	
			N*_2.50-2.95							
								7.0	3.0	
									3.5	
AD/T										2.1 to 5.6 m: 50 mm Well Sleeve
									4.0	2.1 to 6.0 m: Sand
			N*_4.00-4.45					6.0		2.6 to 5.6 m: 50 mm Slotted Pipe
									4.5	Temporary water level at 4.50 m 17/03/2024
			DS_4.50-5.00							
								5.0	5.0	
									5.5	
									6.0	
						BH30 terminated at 6.00 m. Target depth. Standpipe Piezometer Installed.		4.0		
									6.5	
								3.0	7.0	
									7.5	
									8.0	

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MONITORING WELL BH35/GW35

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	21/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	21/03/2024
Location:	Pacific Highway Shoulder (7 Eleven), Wyong	**Checked by:**	PJW	**Surface RL:**	4.8 m
Driller:	Terratest	**Easting:**	353733.6 m	**Top of Cas. RL:**	4.8 m
Drill Model:	Comacchio Geo 305	**Northing:**	6317177.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
Total Depth:	4.45 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	125 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	w>PL	0.5	0.0 to 0.5 m: Grout
		7.3	ES_0.30-0.40			FILL: sandy CLAY: low plasticity; brown; sand is fine to coarse grained, with gravel, fine to medium, sub-angular, igneous		4.0	Standing water level at 0.31 m 10/04/2024
HA			DS_0.50-1.00			FILL: CLAY: low to medium plasticity; dark brown; trace fine grained sand	M	1.0	0.5 to 1.0 m: Bentonite
		8.0	ES_0.80-0.90						0.0 to 1.5 m: 50 mm Solid Pipe
					CI-CL	CLAY: low to medium plasticity; brown; with fine grained sand	w>PL	1.5	
			N*_1.00-1.45						
		4.4	ES_1.70-1.80					3.0	
			DS_1.45-2.50					2.0	
					CI	CLAY: medium plasticity; pale grey to grey; with fine grained sand		2.5	Temporary water level at 2.50 m 21/03/2024
		2.0	N*_2.50-2.95					2.0	1.0 to 4.5 m: Sand
AD/T								3.0	1.3 to 4.5 m: 50 mm Well Sleeve
			DS_2.95-4.00					3.5	1.5 to 4.5 m: 50 mm Slotted Pipe
								1.0	
							w<PL	4.0	
			N*_4.00-4.45		CH	CLAY: high plasticity; yellow-brown mottled pale grey		4.5	
						BH35/GW35 terminated at 4.45 m. Target depth. Standpipe Piezometer Installed.		0.0	
								5.0	
								5.5	
								-1.0	
								6.0	
								6.5	
								-2.0	
								7.0	
								7.5	
								-3.0	
								8.0	

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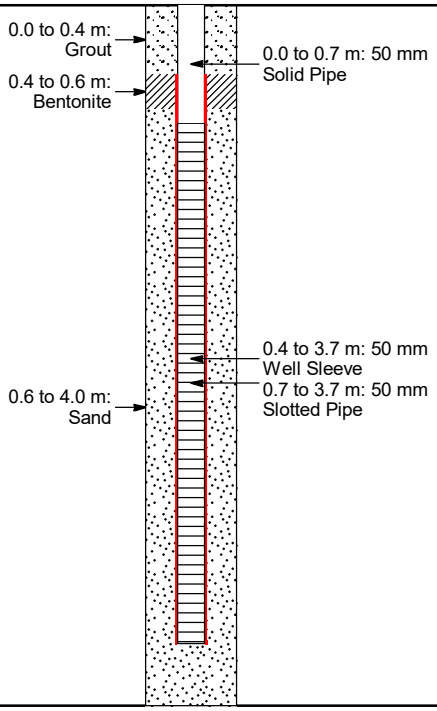
MONITORING WELL BH39

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	17/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	17/03/2024
Location:	Pacific Highway (River Road), Wyong	**Checked by:**	PJW	**Surface RL:**	7.8 m
Driller:	Terratest	**Easting:**	353274.8 m	**Top of Cas. RL:**	7.8 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315671.9 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	4.04 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m)	Depth (m)
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 200 mm thick			
						FILL: CONCRETE: pale grey; aggregates up to 10 mm, 200 mm thick			
		4.7	ES_0.60-0.70			FILL: sandy CLAY: medium plasticity; yellow-brown; sand is fine to medium grained, trace fine igneous gravel	w<PL	7.0	0.5
HA					CH	silty CLAY: high plasticity; red-brown and grey	w<PL		1.0
		13.8	DS_1.00-1.50 ES_1.20-1.30					6.0	1.5
			N*_1.50-1.95						2.0
			DS_2.00-2.50					5.0	2.5
AD/T			N*_2.50-2.85						3.0
									3.5
								4.0	4.0
						CLAYSTONE: dark red-brown; extremely weathered, soil strength	D		
						BH39 terminated at 4.04 m. *Refusal. Standpipe Piezometer Installed.*			4.5
								3.0	5.0
									5.5
								2.0	6.0
									6.5
								1.0	7.0
									7.5
								0.0	8.0

WELL CONSTRUCTION DETAILS



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MONITORING WELL BH42

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/03/2024
Project:	Wyong Town Centre	**Logged by:**	DA/ES	**End Date:**	11/03/2024
Location:	Howarth Street, Wyong	**Checked by:**	PJW	**Surface RL:**	8.7 m
Driller:	Terratest	**Easting:**	353444.9 m	**Top of Cas. RL:**	8.7 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316026.3 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Pavement (asphalt)
	Total Depth: 6.00 m	**Pipe Dia.:**	50 mm		
	Bore Dia.: 125 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 20 mm, 100 mm thick	w<PL	8.7 / 0.0	
		13.0	ES_0.20-0.40			FILL: sandy CLAY: low to medium plasticity; dark brown; sand is fine to coarse grained, trace asphalt fragments		8.2 / 0.5	
		16.6	ES_0.50-0.60				M		
						FILL: sandy CLAY: low plasticity; dark brown-grey; sand is fine to coarse grained, with gravel, fine, angular to sub-rounded, igneous		7.7 / 1.0	0.0 to 1.5 m: Grout
		19.0	ES_0.90-1.00		CH-CI		w~PL		
		9.1	ES_1.20-1.40			FILL: clayey SAND: fine grained; dark grey; with gravel, fine, sub-angular to sub-rounded, igneous			0.0 to 2.5 m: 50 mm Solid Pipe
			N*_1.50-1.95			sandy CLAY: medium to high plasticity; pale grey mottled pale brown; with sand, fine grained		7.0 / 1.5	1.5 to 2.0 m: Bentonite
		7.2	ES_2.20-2.30					6.7 / 2.0	
					CH	CLAY: high plasticity; brown-grey mottled red	w~PL	6.2 / 2.5	Standing water level at 2.67 m 10/04/2024
			U75_2.50-3.00					6.0 / 2.7	
AD/T		16.1	ES_3.00-3.10					5.7 / 3.0	
			N*_3.10-3.45					5.2 / 3.5	
								5.0 / 3.7	2.0 to 5.5 m: 50 mm Well Sleeve
			N*_4.00-4.45					4.7 / 4.0	2.0 to 6.0 m: Sand; 2.5 to 5.5 m: 50 mm Slotted Pipe
								4.2 / 4.5	
					CH	CLAY: high plasticity; grey mottled yellow-brown	w<PL	3.7 / 5.0	
			DS_5.40-5.50					3.2 / 5.5	
			N*_5.50-5.95					2.7 / 6.0	
						BH42 terminated at 6.00 m. Target depth. Standpipe Piezometer Installed.		2.2 / 6.5	
								1.7 / 7.0	
								1.2 / 7.5	
								0.7 / 8.0	

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MONITORING WELL R-BH08

Sheet: 1 of 5

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353234.6 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315319.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	33.70 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HA / DT		8.2	ES_0.00-0.10			TOPSOIL: sandy CLAY: low plasticity; dark brown; trace fine gravel	M	3.0	0.5	0.0 to 0.5 m: Grout
						FILL: CONCRETE: grey; aggregates up to 20 mm, 300 mm thick	w<PL			
						FILL: CLAY: low to medium plasticity; dark brown; trace fine grained sand				
			DS_0.40-1.00							
HA			N*_1.00-1.45					2.0	1.5	0.5 to 1.5 m: Bentonite
										0.0 to 2.2 m: 50 mm Solid Pipe
					SM	silty SAND: fine to medium grained; grey	W		2.0	Standing water level at 2.10 m 11/04/2024
			DS_2.00-2.50					1.0	2.5	Temporary water level at 2.60 m 18/03/2024
AD/T			N*_2.50-2.79						3.0	
								0.0	3.5	
									4.0	
			N*_4.00-4.45					-1.0	4.5	
									5.0	
			N*_5.30-5.75					-2.0	5.5	
WB									6.0	
								-3.0	6.5	
			N*_6.80-7.20		CL	sandy CLAY: low plasticity; dark grey; sand is fine grained	w<PL		7.0	
								-4.0	7.5	
			U75_7.80-8.25						8.0	

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MONITORING WELL R-BH08

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353234.6 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315319.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	33.70 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
			U75_7.80-8.25		CL	sandy CLAY: low plasticity; dark grey; sand is fine grained	w<PL		
			N*_8.30-8.75		SC	clayey SAND: fine to medium grained; grey; sand is fine to medium grained	W	-5.0 8.5	1.5 to 15.4 m: 50 mm Well Sleeve
						from 9.00 m: medium to coarse grained		9.0	1.5 to 16.0 m: Sand; 2.2 to 15.4 m: 50 mm Slotted Pipe
			N*_9.80-10.25					-6.0 9.5	
			N*_10.30-10.75		CL	sandy CLAY: low plasticity; dark grey; sand is fine to medium grained	w>PL	-7.0 10.5	
WB			N*_11.80-12.25					-8.0 11.5	
								12.0	
			N*_13.30-13.75					-9.0 12.5	
								13.0	
								-10.0 13.5	
								14.0	
			N*_14.80-15.25				w<PL	-11.0 14.5	
								15.0	
								-12.0 15.5	
								16.0	

Remarks: 11.35 m: U75 attempted, no recovery

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MONITORING WELL R-BH08

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353234.6 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315319.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	33.70 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture: Weathering	Moisture: Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
WB			DS_16.30-16.59		CL	sandy CLAY: low plasticity; dark grey; sand is fine to medium grained	w<PL		16.5	0.0	
						SANDSTONE: fine to medium grained; pale grey; iron stained	HW	soil-VL	-13.0		
			CS_16.79-16.89			SANDSTONE: fine to medium grained; pale grey; cross-bedded at 10-15°, spaced 5-20 mm; iron stained, rare carbonaceous laminations and flecks			17.0		
			CS_17.12-17.22				MW	L			
									17.5		
									-14.0		
							XW	soil			
							MW	L	18.0		
						NO CORE: 18.46 to 18.59 m			18.5		
									-15.0		
						SANDSTONE: fine to medium grained; pale grey; indistinctly cross-bedded at 5-25°; with siltstone bands and inclusions, up to 200 mm thick	MW-SW	L-M			
			CS_18.72-18.85						19.0		
							XW-HW	soil-VL			
			CS_19.50-19.60						19.5		
									-16.0		
HQ3									20.0		
							XW	soil	20.5		
							XW	soil	-17.0		
							HW	VL			
			CS_20.81-20.90				XW	soil			
							XW-HW	soil-VL	21.0		
							XW	soil			
						NO CORE: 21.37 to 21.59 m			21.5		
									-18.0		
			CS_21.65-21.75			SANDSTONE: fine to medium grained; pale grey; indistinctly cross-bedded at 5-25°; with siltstone bands and inclusions, up to 200 mm thick	MW-SW	VL-L			
									22.0		
									22.5		
									-19.0		
			CS_22.87-23.00						23.0		
									23.5		
									-20.0		
			CS_23.87-24.00						24.0		

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MONITORING WELL R-BH08

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353234.6 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315319.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Topsoil
Total Depth:	33.70 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	96 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
								MW-SW	VL-L			
						SILTSTONE: grey to dark grey; indistinctly laminated at 0-5°		XW	soil	21.0	24.5	
			CS_24.68-24.76					SW	L-M			16.0 to 33.7 m: Bentonite
						CLAYSTONE: dark red-brown; occasional sandstone bands, pale grey, up to 40 mm thick			L	22.0	25.0	
			CS_25.90-25.98								25.5	
			CS_26.86-26.94							23.0	26.0	
			CS_27.48-27.72								26.5	
HQ3			CS_27.92-28.00					FR	M	24.0	27.0	
			CS_28.71-28.80								27.5	
			CS_29.68-29.76			SANDSTONE: fine to medium grained; pale grey; cross-bedded at 0-5°, spaced 1-10 mm; bioturbation disrupting bedding, occasional claystone bands, dark red-brown, up to 60 mm thick				25.0	28.0	
			CS_30.67-30.78								28.5	
			CS_31.40-31.70						M-H	26.0	29.0	
			CS_31.76-31.84								29.5	
										27.0	30.0	
											30.5	
										28.0	31.0	
											31.5	
											32.0	

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MONITORING WELL R-BH08

Sheet: 5 of 5

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	18/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	20/03/2024
Location:	Pacific Highway, Grass Verge	**Checked by:**	PJW	**Surface RL:**	3.5 m
Driller:	Terratest	**Easting:**	353234.6 m	**Top of Cas. RL:**	3.5 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315319.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	33.70 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Topsoil

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
HQ3			CS_32.90-33.00			CLAYSTONE: dark red-brown; rare sandstone bands, pale grey, up to 10 mm thick	FR	M-H	32.5 / -29.0	
			CS_33.00-33.34						33.0	
			CS_33.61-33.73			*R-BH08 terminated at 33.70 m. Target depth. Standpipe Piezometer Installed.*			33.5 / -30.0	
									34.0	
									34.5 / -31.0	
									35.0	
									35.5 / -32.0	
									36.0	
									36.5 / -33.0	
									37.0	
									37.5 / -34.0	
									38.0	
									38.5 / -35.0	
									39.0	
									39.5 / -36.0	
									40.0	

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MONITORING WELL R-BH23

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	KH/DA	**End Date:**	11/12/2023
Location:	1 Pacific Highway, Wyong	**Checked by:**	PJW	**Surface RL:**	12.1 m
Driller:	Terratest	**Easting:**	353313.8 m	**Top of Cas. RL:**	12.1 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315833.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	22.84 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Concrete (slab)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
DT						FILL: CONCRETE: dark grey; aggregates up to 20 mm, 115 mm thick, with steel reinforcement, 9 mm diameter		D	12.0	0.5	
NDD						FILL: gravelly SAND: medium to coarse grained; dark brown-grey; gravel is fine to medium, with silt					0.0 to 1.7 m: Grout
						FILL: COBBLES: grey; sub-angular; 60-100 mm, igneous				1.0	
					CH	silty CLAY: high plasticity; brown; with sand, fine to medium grained		w<PL	11.0		
			DS_1.40-1.50							1.5	0.0 to 3.2 m: 50 mm Solid Pipe
AD/T			N*_1.50-1.95			from 1.55 m, becoming grey mottled red-brown					1.7 to 2.2 m: Bentonite
										2.0	
					CH-CI	sandy CLAY: medium to high plasticity; yellow-brown; sand is fine grained, with fine gravel, sub-rounded to sub-angular			10.0		
										2.5	
			DS_2.70-3.00								
			N*_3.00-3.15							3.0	
			N*_3.15-3.36			CLAYSTONE: dark red-brown mottled pale grey; extremely weathered, soil strength		D	9.0		
						CLAYSTONE: dark red-brown and pale grey; occasional sandstone bands, fine grained, pale grey, up to 110 mm thick	XW	soil		3.5	
			CS_3.86-3.95							4.0	
			CS_4.00-4.13						8.0		
										4.5	
										5.0	
						SANDSTONE: fine to medium grained; grey and orange-brown; indistinctly cross-bedded at 0-20°; iron stained, occasional claystone laminations and bands	XW HW	soil VL	7.0		
HQ3										5.5	
							XW	soil			
			CS_5.89-6.00			from 5.85 m: claystone laminations and bands absent	XW HW	soil VL	6.0	6.0	
							HW	VL			
										6.5	
			CS_6.58-6.67								
										7.0	
						from 7.11 m to 7.49 m: indistinct liesegang structures			5.0		
										7.5	
			CS_7.88-8.00							8.0	

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MONITORING WELL R-BH23

Sheet: 2 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	KH/DA	**End Date:**	11/12/2023
Location:	1 Pacific Highway, Wyong	**Checked by:**	PJW	**Surface RL:**	12.1 m
Driller:	Terratest	**Easting:**	353313.8 m	**Top of Cas. RL:**	12.1 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315833.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	22.84 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Concrete (slab)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture: Weathering	Moisture: Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HQ3			CS_8.36-8.46			SANDSTONE: fine to medium grained; grey and orange-brown; indistinctly cross-bedded at 0-20°; iron stained, occasional claystone laminations and bands from 8.05 m to 8.25 m: coarse grained	HW	VL	4.0	8.5	
			CS_9.57-9.66			from 9.35 m: indistinctly cross bedded at 0-10°			3.0	9.0 9.5	
						CLAYSTONE: dark red-brown; occasional sandstone bands and laminations, fine grained, pale grey, up to 100 mm thick from 10.21 m to 10.48 m: sandstone band, fine grained	XW-soil HW	VL	2.0	10.0	Standing water level at 10.02 m 11/04/2024
			CS_10.90-11.00				HW XW-soil HW	VL VL	1.0	10.5 11.0	
			CS_11.89-12.00				HW MW	VL VL	0.0	11.5 12.0	2.2 to 22.8 m: Sand
			CS_12.78-12.91						-1.0	12.5 13.0	2.7 to 22.8 m: 50 mm Well Sleeve 3.2 to 22.8 m: 50 mm Slotted Pipe
			CS_13.89-14.00						-2.0	13.5 14.0	
			CS_14.81-14.90			from 14.83 m: laminations at 5-10°, spaced at 1-5 mm			-3.0	14.5 15.0	
			CS_15.42-15.74			SANDSTONE: fine grained; pale grey; indistinctly cross-bedded at 0-10°, spaced 5-25 mm	HW MW	VL		15.5 16.0	

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MONITORING WELL R-BH23

Sheet: 3 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	08/12/2023
Project:	Wyong Town Centre	**Logged by:**	KH/DA	**End Date:**	11/12/2023
Location:	1 Pacific Highway, Wyong	**Checked by:**	PJW	**Surface RL:**	12.1 m
Driller:	Terratest	**Easting:**	353313.8 m	**Top of Cas. RL:**	12.1 m
Drill Model:	Comacchio Geo 405	**Northing:**	6315833.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	22.84 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Concrete (slab)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
			CS_15.91-16.00			SANDSTONE: fine grained; pale grey; indistinctly cross-bedded at 0-10°, spaced 5-25 mm		MW	VL	-4.0	16.5	
								MW-SW	L			
			CS_16.78-16.88							-5.0	17.0	
						from 17.04 m to 17.23 m: iron stained band, 190 mm thick		HW				
						SANDSTONE: fine to medium grained; pale grey		SW-FR	H		17.5	
			CS_17.42-17.88									
			CS_17.87-18.00							-6.0	18.0	
											18.5	
			CS_18.78-18.91								19.0	
			CS_19.08-19.17							-7.0		
HQ3						NO CORE: 19.45 to 21.5 m					19.5	
											20.0	
										-8.0		
											20.5	
											21.0	
										-9.0		
			CS_21.44-21.55			SANDSTONE: fine grained; blue-grey; indistinctly cross-bedded at 0-10°, spaced 5-20 mm		FR	L		21.5	
											22.0	
										-10.0		
			CS_22.73-22.83								22.5	
						R-BH23 terminated at 22.84 m. Target depth. Standpipe Piezometer Installed.					23.0	
										-11.0		
											23.5	
											24.0	

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MONITORING WELL R-BH26

Sheet: 1 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	04/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	04/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Surface RL:**	13.6 m
Driller:	Terratest	**Easting:**	353395.3 m	**Top of Cas. RL:**	13.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316158.2 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	21.60 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
NDD						FILL: clayey gravelly SAND: fine to coarse grained; dark brown; gravel is fine to medium, angular, igneous, trace rootlets	D		D	13.6	0.0	0.0 to 0.8 m: Grout
						SANDSTONE: fine grained; pale orange-brown; extremely weathered, soil strength, with quartz and claystone inclusions, fine to coarse gravel size, rounded	M			13.0	0.5	0.8 to 1.0 m: Bentonite
											1.0	0.0 to 1.5 m: 50 mm Solid Pipe
AD/T			N*_1.50-1.95							12.0	1.5	
											2.0	
						CLAYSTONE: dark red-brown; highly weathered, very low strength	D			11.0	2.5	
			N*_3.00-3.30								3.0	
						CLAYSTONE: dark red-brown; rare sandstone inclusions and laminations, pale grey, fine grained, up to 40 mm thick	HW	VL		10.0	3.5	
							MW	VL-L			4.0	
			CS_3.85-3.97								4.5	
			CS_4.67-4.79							9.0	5.0	
HQ3						SANDSTONE: fine grained; pale grey; indistinctly cross-bedded at 0-10°; with iron stained and liesegang structure zones, pale orange-brown	MW-SW	L			5.5	Standing water level at 5.70 m 08/03/2024
						from 5.69 m to 5.82 m: claystone laminations, dark red-brown, spaced 1mm				8.0	6.0	
			CS_5.86-6.00								6.5	
			CS_6.88-7.00							7.0	7.0	
											7.5	
			CS_7.88-7.99							6.0	8.0	

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MONITORING WELL R-BH26

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	04/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	04/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Surface RL:**	13.6 m
Driller:	Terratest	**Easting:**	353395.3 m	**Top of Cas. RL:**	13.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316158.2 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	21.60 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HQ3						SANDSTONE: fine grained; pale grey; indistinctly cross-bedded at 0-10°; with iron stained and liesegang structure zones, pale orange-brown	MW-SW	L	8.5	5.0	1.0 to 16.0 m: Sand; 1.0 to 15.5 m: 50 mm Well Sleeve; 1.5 to 15.5 m: 50 mm Slotted Pipe
	●		CS_8.78-8.90								
							XW-HW	soil-VL	9.5		
							HW-MW	L-M	4.0		
	●		CS_9.84-9.95			from 9.93 m to 10.07 m: claystone band, pale grey				10.0	
						from 10.40 m to 10.70 m: claystone inclusions, fine to medium gravel size	HW	VL		10.5	
									3.0		
	●		CS_10.86-10.99				MW-SW	L-M		11.0	
	●		CS_11.61-11.71						2.0	11.5	
							HW-MW	L		12.0	
										12.5	
	●		CS_12.65-12.74			CLAYSTONE: dark red-brown	MW-SW		1.0	13.0	
										13.5	
	●		CS_13.51-13.62						0.0	14.0	
							HW-MW				
							SW	L-M		14.5	
	●		CS_14.70-14.80						-1.0	15.0	
						INTERBEDDED CLAYSTONE/SANDSTONE: CLAYSTONE (70%): dark red-brown, interbedded with SANDSTONE (30%): fine grained, pale green-grey, indistinctly cross-bedded at 0-5°				15.5	
									-2.0		
	●		CS_15.86-15.96							16.0	

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MONITORING WELL R-BH26

Sheet: 3 of 3

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	04/12/2023
Project:	Wyong Town Centre	**Logged by:**	AA	**End Date:**	04/12/2023
Location:	Former Sydney Trains Depot	**Checked by:**	PJW	**Surface RL:**	13.6 m
Driller:	Terratest	**Easting:**	353395.3 m	**Top of Cas. RL:**	13.6 m
Drill Model:	Comacchio Geo 405	**Northing:**	6316158.2 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	21.60 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture: Weathering	Moisture: Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
							SW	L-M	16.5 / -3.0	
			CS_16.80-16.88			SANDSTONE: fine grained; pale grey; indistinctly cross-bedded at 0-10°; trace claystone laminations and bands, dark red-brown	SW	H	17.0 / -4.0	
			CS_17.79-17.89			SANDSTONE: fine to coarse grained; pale grey; indistinctly cross-bedded at 0-10°			17.5 / -5.0	
HQ3			CS_18.86-18.99						18.0 / -6.0	16.0 to 21.6 m: Bentonite
			CS_19.88-20.00			from 20.29 m to 20.35 m: weathered sandstone inclusion			18.5 / -7.0	
			CS_20.88-21.00						19.0 / -8.0	
			CS_21.45-21.60			from 21.38 m to 21.54 m: iron stained			19.5 / -9.0	
						R-BH26 terminated at 21.60 m. Target depth. Standpipe Piezometer Installed.			20.0 / -10.0	
									20.5 / -11.0	
									21.0 / -12.0	
									21.5 / -13.0	
									22.0 / -14.0	
									22.5 / -15.0	
									23.0 / -16.0	
									23.5 / -17.0	
									24.0 / -18.0	

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MONITORING WELL R-BH29

Sheet: 1 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	12/12/2023
Location:	North of Eastern Station Carpark	**Checked by:**	PJW	**Surface RL:**	13.8 m
Driller:	Terratest	**Easting:**	353421.6 m	**Top of Cas. RL:**	13.8 m
Drill Model:	Comacchio Geo 205	**Northing:**	6316127.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Hor. Proj/Dat:**	MGA94/GDA94-56H	**Surface:**	Grass
Total Depth:	14.55 m	**Pipe Dia.:**	50 mm		
Bore Dia.:	96 mm				

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Weathering	Strength	Reduced Level (m)	Depth (m)	WELL CONSTRUCTION DETAILS
HA			ES_0.00-0.20			TOPSOIL: silty sandy CLAY: medium plasticity; dark brown	M					0.0 to 0.5 m: Grout
			DS_0.20-0.50			FILL: clayey SAND: fine to medium grained; brown; trace fine to coarse igneous gravel from 0.50 m: with gravel	M			13.8	0.5	
			DS_0.60-1.00									0.5 to 1.0 m: Bentonite
			ES_0.90-1.00		CI	CLAY: medium plasticity; red-brown; with gravel, fine, sub-angular, ironstone	D			13.0	1.0	0.0 to 1.5 m: 50 mm Solid Pipe
			DS_1.00-1.30									
AD/T			DS_1.30-1.50			CLAYSTONE: dark red-brown mottled pale grey; extremely weathered, soil to very low strength	D				1.5	
			N*_1.50-1.95							12.0	2.0	Standing water level at 1.72 m 08/03/2024
						NO CORE: 2.00 to 4.89 m					2.5	
										11.0	3.0	
											3.5	
										10.0	4.0	
											4.5	
HQ3						SANDSTONE: fine to medium grained; pale brown and pale grey; cross-bedded at 0-40°, iron stained; occasional claystone laminations and bands, dark red-brown, up to 110 mm thick	MW	VL-L		9.0	5.0	
			CS_5.85-5.95							8.0	6.0	Standing water level at 5.66 m 15/12/2023
											6.5	
			CS_6.90-7.00			SANDSTONE: fine to coarse grained; pale orange-brown; indistinctly cross-bedded at 0-10°; iron stained from 6.83 m to 7.84 m: with liesengang banding				7.0	7.0	
											7.5	1.0 to 14.1 m: 50 mm Well Sleeve
										6.0	8.0	1.0 to 14.6 m: Sand; 1.5 to 14.1 m: 50 mm Slotted Pipe

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MONITORING WELL R-BH29

Sheet: 2 of 2

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	11/12/2023
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	12/12/2023
Location:	North of Eastern Station Carpark	**Checked by:**	PJW	**Surface RL:**	13.8 m
Driller:	Terratest	**Easting:**	353421.6 m	**Top of Cas. RL:**	13.8 m
Drill Model:	Comacchio Geo 205	**Northing:**	6316127.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	14.55 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	96 mm	**Pipe Dia.:**	50 mm
				Surface:	Grass

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering	Moisture / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
			CS_7.89-8.00			SANDSTONE: fine to coarse grained; pale orange-brown; indistinctly cross-bedded at 0-10°; iron stained	MW	VL-L	8.5	
			CS_8.86-9.00			from 8.74 m: pale grey and pale orange-brown, with iron staining			5.0 9.0	
			CS_9.38-9.47						9.5	
			CS_10.00-10.08						4.0 10.0	
			CS_10.07-10.27			from 10.55 m to 10.65 m: sub-vertical undulating carbonaceous lamination			10.5	
HQ3			CS_11.31-11.54			CLAYSTONE: dark red-brown; rare sandstone bands, pale grey, up to 40 mm thick			3.0 11.0 11.5	
			CS_11.89-12.00 CS_11.89-12.0						2.0 12.0	
			CS_12.74-12.84						12.5 1.0 13.0	
			CS_13.90-14.00						13.5 0.0 14.0	
			CS_14.20-14.28						14.5	
						R-BH29 terminated at 14.55 m. Target depth. Standpipe Piezometer Installed.			-1.0 15.0 15.5 -2.0 16.0	

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MONITORING WELL R-BH37

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	22/03/2024
Project:	Wyong Town Centre	**Logged by:**	KH	**End Date:**	22/03/2024
Location:	204-206 Pacific Highway, Tuggerah	**Checked by:**	PJW	**Surface RL:**	2.9 m
Driller:	Terratest	**Easting:**	353142.0 m	**Top of Cas. RL:**	2.9 m
Drill Model:	Comacchio Geo 305	**Northing:**	6315303.5 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	6.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56M
		Bore Dia.:	125 mm	**Pipe Dia.:**	50 mm
				Surface:	Fill

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture / Weathering / Strength	Reduced Level (m) / Depth (m)	WELL CONSTRUCTION DETAILS
HA			ES_0.00-0.20			FILL: silty sandy GRAVEL: fine to coarse; dark grey to grey; sub-rounded to sub-angular; sand is fine grained	D	0.5	0.0 to 0.2 m: Grout
			DS_0.30-0.40			from 0.10 m: becoming dark grey			
			ES_0.40-0.60		CH	FILL: clayey gravelly SAND: fine to medium grained; grey; gravel is medium, sub-rounded to sub-angular	w<PL		0.2 to 0.7 m: Bentonite
						CLAY: high plasticity; brown-grey		2.0 1.0	0.0 to 1.1 m: 50 mm Solid Pipe
			DS_0.90-1.10						
			ES_1.20-1.30		SP	SAND: fine to medium grained; grey	M		
			ES_1.40-1.50			mottled red-brown		1.5	
			N*_1.60-1.95					1.0 2.0	Standing water level at 1.81 m 12/04/2024
			ES_2.30-2.40					2.5	Standing water level at 2.35 m 26/03/2024
					SM	silty SAND: fine grained; grey mottled red-brown	W		0.7 to 4.2 m: 50 mm Well Sleeve
			DS_2.80-3.00					0.0 3.0	1.1 to 4.2 m: 50 mm Slotted Pipe
AD/T			N*_3.00-3.30						
			N*_3.30-3.45		SM	silty SAND: fine to medium grained; brown-grey		3.5	0.7 to 6.0 m: Sand
								-1.0 4.0	
					SP	SAND: fine grained; grey		4.5	
			N*_4.50-4.95					-2.0 5.0	
								5.5	
			DS_5.70-5.90					-3.0 6.0	
						R-BH37 terminated at 6.00 m. Target depth		6.5	
								-4.0 7.0	
								7.5	
								-5.0 8.0	

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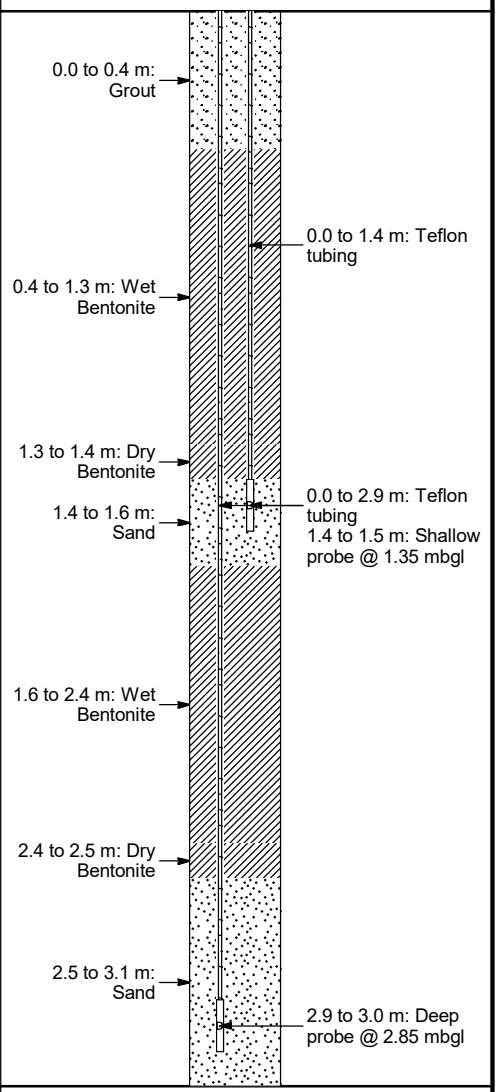
SOIL VAPOUR BORE SV01

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	24/03/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	24/03/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Surface RL:**	9.0 m
Driller:	Terratest	**Easting:**	353408.5 m	**Top of Cas. RL:**	9.0 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316323.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	3.10 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Surface:**	Pavement (seal)

Drill Method	Sample Interval PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Depth (m)
DT					FILL: BITUMINOUS SEAL: dark grey; aggregates up to 15 mm, 10 mm thick	M	0
					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 30 mm thick	M	
					FILL: clayey SAND: fine to coarse grained; brown; with gravel, fine to medium, sub-angular, igneous		
	11.5	BH26/GW26_0.40-0.50			FILL: clayey SAND: fine to medium grained; dark brown to dark grey; with gravel, fine, sub-angular, igneous		
	6.5	BH26/GW26_0.80-0.90		CI-CL	silty CLAY: low to medium plasticity; dark brown to dark grey; trace fine grained sand	w>PL	1
	7.1	BH26/GW26_1.10-1.20					
AD/T	12.27	BH26/GW26_1.50-1.60		CH-CI	silty CLAY: medium to high plasticity; red-brown mottled grey	w<PL	2
	27.2	BH26/GW26_2.40-2.50					
	18.5				*SV01 terminated at 3.10 m. Target depth*		3

SOIL VAPOUR BORE CONSTRUCTION DETAILS



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SOIL VAPOUR BORE SV02

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Client:	TfNSW	**Project No:**	60709736	**Start Date:**	25/03/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	25/06/2024
Location:	Pacific Highway Shoulder (Shell), Wyong	**Checked by:**	PJW	**Surface RL:**	5.2 m
Driller:	Terratest	**Easting:**	353440.6 m	**Top of Cas. RL:**	5.2 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316400.9 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	0.60 m	**Hor. Proj/Dat:**	MGA94/GDA94-56M
		Bore Dia.:	125 mm	**Surface:**	Pavement (seal)

Drill Method	Sample Interval PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Depth (m)	SOIL VAPOUR BORE CONSTRUCTION DETAILS
DT AD/T	105.0	BH27/GW27_0.30-0.40			FILL: BITUMINOUS SEAL: dark grey; aggregates up to 10 mm, 20 mm thick FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 65 mm thick FILL: clayey SAND: fine to coarse grained; pale brown; with gravel, fine, sub-angular, igneous FILL: CLAY: medium plasticity; grey; with sand, fine to medium grained FILL: sandy CLAY: low to medium plasticity; pale brown; with gravel, fine, sub-angular, igneous *SV02 terminated at 0.60 m.* *Target depth*	D w>PL	0 1 2 3	0.0 to 0.2 m: Grout 0.2 to 0.3 m: Wet Bentonite 0.3 to 0.4 m: Dry Bentonite 0.4 to 0.6 m: Sand 0.0 to 0.5 m: Teflon tubing 0.5 to 0.6 m: Probe @ 0.45 mbgl

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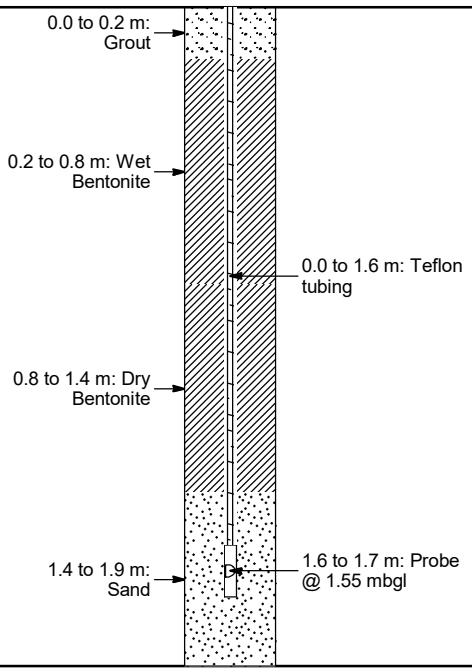
SOIL VAPOUR BORE SV03

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	ES	**End Date:**	26/03/2024
Location:	Pacific Highway Shoulder (Aldi), Wyong	**Checked by:**	PJW	**Surface RL:**	4.3 m
Driller:	Terratest	**Easting:**	353462.7 m	**Top of Cas. RL:**	4.3 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316459.6 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	1.90 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Surface:**	Pavement (asphalt)

Drill Method	Sample Interval PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Depth (m)
DT					FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 40 mm thick	M	0
					FILL: clayey SAND: fine grained; brown; with gravel, fine to medium, sub-angular, igneous	w<PL	
					FILL: silty CLAY: medium plasticity; brown mottled red; trace fine grained sand		
AD/T	8.2	BH28/GW28_0.80-0.90					1
				CH-CI	silty CLAY: medium to high plasticity; dark brown; trace fine grained sand	w>PL	
	5.2	BH28/GW28_1.70-1.80		CH-CI	silty CLAY: medium to high plasticity; brown; trace fine grained sand, trace fine gravel	w~PL	
					SV03 terminated at 1.90 m. *Target depth*		2
							3

SOIL VAPOUR BORE CONSTRUCTION DETAILS



Final

AECOM

Final

SOIL VAPOUR BORE SV04

Sheet: 1 of 1

Client:	TfNSW	**Project No:**	60709736	**Start Date:**	26/03/2024
Project:	Wyong Town Centre	**Logged by:**	JL	**End Date:**	26/03/2024
Location:	North Road, Wyong	**Checked by:**	PJW	**Surface RL:**	4.7 m
Driller:	Terratest	**Easting:**	353450.4 m	**Top of Cas. RL:**	4.7 m
Drill Model:	Comacchio Geo 305	**Northing:**	6316512.8 m	**Ver. Datum:**	m AHD
Drill Fluid:	-	**Total Depth:**	3.00 m	**Hor. Proj/Dat:**	MGA94/GDA94-56H
		Bore Dia.:	125 mm	**Surface:**	Pavement (asphalt)

Drill Method	Sample Interval	PID (ppm)	Sample ID	Graphic Log	Classification	MATERIAL DESCRIPTION	Moisture	Depth (m)
DT						FILL: ASPHALTIC CONCRETE: dark grey; aggregates up to 15 mm, 50 mm thick	M	0
HA					CH-CI	FILL: clayey GRAVEL: fine to coarse; grey to dark grey; sub-angular; igneous, with sand, fine to coarse grained	w>PL	
						CLAY: medium to high plasticity; brown mottled grey; trace fine grained sand		
		3.5	BH29/GW29_0.40-0.50					
		2.2						1
			BH29/GW29_1.20-1.30					
		1.5						
AD/T			BH29/GW29_1.70-1.80					
		1.2						2
		2.7			CH	CLAY: high plasticity; red-brown mottled grey; trace fine grained sand	w~PL	
		2.1						3
						SV04 terminated at 3.00 m. Target depth		

SOIL VAPOUR BORE CONSTRUCTION DETAILS

- 0.0 to 0.2 m: Grout
- 0.2 to 1.8 m: Wet Bentonite
- 0.0 to 2.3 m: Teflon tubing
- 1.8 to 2.1 m: Dry Bentonite
- 2.3 to 2.4 m: Probe @ 2.25 mbgl
- 2.1 to 3.0 m: Sand

Final

Appendix G

Photographs

Photographs



Plate 1 ACM conduit within the rail corridor near R-BH19



Plate 2 Stockpiles of waste and rail sleepers located on the south side of R-BH19

Appendix H

Laboratory reports

CERTIFICATE OF ANALYSIS

Work Order	: **ES2337379**	Page	: 1 of 13
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 30-Oct-2023 16:03
Order number	: 60709736 CDRL 1100	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 09:34
Sampler	: JAMES LOONEY		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 23		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Shane Merrell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EK040: Poor matrix spike recovery due to matrix effect, to confirm duplicate sample was spiked giving the same poor recovery.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- NSW-WCG: Where reported, Total Chlorinated Hydrocarbons is the sum of the reported concentrations of all Chlorinated Hydrocarbons at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EG005T: Poor precision was obtained for Zinc on sample ES2337784 #1. Confirmed by re-digestion and reanalysis.
- EP080/EP074: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-033. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP132: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
			Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	7.0	7.4	7.9	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	12	20	116	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.0	7.8	5.8	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	40	200	9	----	----
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----
Cadmium	7440-43-9	1	mg/kg	<1	3	<1	----	----
Lead	7439-92-1	5	mg/kg	104	4770	48	----	----
Molybdenum	7439-98-7	2	mg/kg	<2	2	<2	----	----
Nickel	7440-02-0	2	mg/kg	16	15	4	----	----
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----
Silver	7440-22-4	2	mg/kg	<2	4	<2	----	----
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	46	45	7	----	----
Cadmium	7440-43-9	0.4	mg/kg	<0.4	1.0	<0.4	----	----
Chromium	7440-47-3	2	mg/kg	10	18	13	----	----
Copper	7440-50-8	5	mg/kg	355	126	12	----	----
Lead	7439-92-1	5	mg/kg	84	308	42	----	----
Nickel	7440-02-0	2	mg/kg	23	21	5	----	----
Zinc	7440-66-6	5	mg/kg	328	689	203	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EG048: Hexavalent Chromium (Alkaline Digest) - Continued									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		<1	<1	<1	----	----
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser									
Weak Acid Dissociable Cyanide	----	1	mg/kg		<1	<1	<1	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		**150**	**140**	**160**	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		**0.1**	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
EP068B: Organophosphorus Pesticides (OP)									
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074B: Oxygenated Compounds									
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	----	----
EP074E: Halogenated Aliphatic Compounds									
Vinyl chloride	75-01-4	4	mg/kg		<4	<4	<4	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Methylene chloride	75-09-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP075A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	1	mg/kg		<1	<1	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg		<1	<1	<1	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of PAHs	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP075C: Phthalate Esters									
bis(2-ethylhexyl) phthalate	117-81-7	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
EP075E: Nitroaromatics and Ketones									
Nitrobenzene	98-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4-Dinitrotoluene	121-14-2	1.0	mg/kg		<1.0	<1.0	<1.0	----	----
Pentachloronitrobenzene	82-68-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP075G: Chlorinated Hydrocarbons									
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachlorobenzene	608-93-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3.4-Tetrachlorobenzene	634-66-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP075K: Miscellaneous Compounds									
1.2.4.5-Tetrachlorobenzene	95-94-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.3.4.6-Tetrachlorophenol	58-90-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EP075K: Miscellaneous Compounds - Continued									
Isodrin	465-73-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Di (2-ethylhexyl) adipate	103-23-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	----	**4.2**	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	**4.4**	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	**4.6**	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	**1.8**	<0.5
^ **Total Xylenes**	----	0.5	mg/kg		----	----	----	**6.4**	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	----	**15.0**	<0.2
Naphthalene	91-20-3	1	mg/kg		----	----	----	<1	<1
EP132A: Phenolic Compounds									
Hexachlorophene	70-30-4	0.01	mg/kg		<0.01	<0.01	<0.01	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.02	<0.02	----	----
NSW-CWG: Aggregate Organics for Guideline Evaluation									
^ø **Sum of Endosulfans (inc. sulfate)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
NSW-CWG: Aggregate Organics for Guideline Evaluation - Continued									
ø Sum of Scheduled Chemicals	----	0.05	mg/kg		<10.0	<10.0	<10.0	----	----
^ø Sum of plasticisers	----	0.50	mg/kg		<5.00	<5.00	<5.00	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		102	105	97.5	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		112	102	140	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		113	92.4	120	----	----
EP074S(SIM) : VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		95.9	90.9	96.0	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		83.5	89.0	88.1	----	----
Toluene-D8	2037-26-5	0.5	%		95.0	107	105	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		95.1	104	103	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	0.5	%		95.7	84.2	85.5	----	----
Phenol-d6	13127-88-3	0.5	%		102	95.7	94.6	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		94.8	92.8	90.6	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		62.1	76.6	61.1	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.5	%		120	116	113	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.5	%		94.4	94.7	94.7	----	----
2-Fluorobiphenyl	321-60-8	0.5	%		106	106	101	----	----
Anthracene-d10	1719-06-8	0.5	%		90.4	95.1	93.4	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		94.7	93.3	89.2	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		89.1	101	99.9	100.0	102

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	TS TRIP SPIKE 15	TB TRIP BLANK
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337379-002	ES2337379-004	ES2337379-008	ES2337379-014	ES2337379-015
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		99.4	112	110	110	112
4-Bromofluorobenzene	460-00-4	0.2	%		104	116	114	112	116
EP132S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	10	%		87.4	56.6	69.3	----	----
Phenol-d6	13127-88-3	10	%		92.2	69.4	76.4	----	----
2-Chlorophenol-D4	93951-73-6	10	%		60.7	61.0	65.6	----	----
2.4.6-Tribromophenol	118-79-6	10	%		51.9	47.0	73.7	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	10	%		71.1	79.6	63.8	----	----
Anthracene-d10	1719-06-8	10	%		58.1	79.9	73.5	----	----
4-Terphenyl-d14	1718-51-0	10	%		70.8	79.0	76.4	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		83.8	85.6	88.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TSC TRIP SPIKE CONTROL 15	----	----	----	----
			Sampling date / time	23-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2337379-016	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	**4.4**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**4.6**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**4.7**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**1.9**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	**6.6**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	**15.6**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**103**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	**110**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**113**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S(SIM) : VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	131
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	29	149
Phenol-d6	13127-88-3	32	128
2-Chlorophenol-D4	93951-73-6	32	128
2.4.6-Tribromophenol	118-79-6	13	121
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	33	125
1.2-Dichlorobenzene-D4	2199-69-1	34	108
2-Fluorobiphenyl	321-60-8	35	121
Anthracene-d10	1719-06-8	35	123
4-Terphenyl-d14	1718-51-0	33	125
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP132S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	25	121
Phenol-d6	13127-88-3	25	121
2-Chlorophenol-D4	93951-73-6	21	137
2.4.6-Tribromophenol	118-79-6	19	122
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	27	131
Anthracene-d10	1719-06-8	35	139
4-Terphenyl-d14	1718-51-0	30	164
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EK040T: Fluoride Total

QUALITY CONTROL REPORT

Work Order	: **ES2337379**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 30-Oct-2023
Order number	: 60709736 CDRL 1100	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: JAMES LOONEY		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 23		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Shane Merrell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5410772)									
ES2337379-002	ACM-TP03_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	17	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	104	117	12.2	0% - 20%
ES2337379-002	ACM-TP03_0.5-0.6	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	40	53	27.3	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
ES2337959-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	17	9.2	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	13	50.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	23	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	7	7	0.0	No Limit
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QC Lot: 5410096)									
ES2337784-001	Anonymous	EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
		EG005T-MW: Chromium	7440-47-3	2	mg/kg	9	12	29.7	No Limit
		EG005T-MW: Nickel	7440-02-0	2	mg/kg	5	6	0.0	No Limit
		EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QC Lot: 5410096) - continued									
ES2337784-001	Anonymous	EG005T-MW: Copper	7440-50-8	5	mg/kg	13	27	67.8	No Limit
		EG005T-MW: Lead	7439-92-1	5	mg/kg	17	34	67.1	No Limit
		EG005T-MW: Zinc	7440-66-6	5	mg/kg	389	# 604	43.5	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5410765)									
ES2337379-002	ACM-TP03_0.5-0.6	EA002: pH Value	----	0.1	pH Unit	7.0	7.2	2.2	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5410766)									
ES2337379-002	ACM-TP03_0.5-0.6	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	12	15	17.1	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5409653)									
ES2337991-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	29.8	29.8	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5410779)									
ES2337634-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	83.5	84.2	0.8	0% - 20%
ES2337991-003	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	29.0	25.5	12.8	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5410771)									
ES2337379-002	ACM-TP03_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2337978-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QC Lot: 5410097)									
ES2337784-001	Anonymous	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 5415885)									
ES2337379-002	ACM-TP03_0.5-0.6	EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2338111-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	0.5 (4.7)*	mg/kg	<4.8	<4.7	3.1	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 5412399)									
ES2337379-008	ACM-TP08_0.5-0.6	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QC Lot: 5412398)									
ES2337379-008	ACM-TP08_0.5-0.6	EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 5410679)									
ES2337379-002	ACM-TP03_0.5-0.6	EK040T: Fluoride	16984-48-8	40	mg/kg	150	140	9.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5408359)									
ES2337379-002	ACM-TP03_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5408357)									
ES2337379-002	ACM-TP03_0.5-0.6	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5408357) - continued									
ES2337379-002	ACM-TP03_0.5-0.6	EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5408357)									
ES2337379-002	ACM-TP03_0.5-0.6	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QC Lot: 5408358)									
ES2337379-002	ACM-TP03_0.5-0.6	EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071SG-S: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QC Lot: 5408358)									
ES2337379-002	ACM-TP03_0.5-0.6	EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5408625)									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5408625)									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5408625)									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Methylene chloride	75-09-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5408625) - continued									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5 (4)*	mg/kg	<4	<4	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5408625)									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5408625)									
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075A: Phenolic Compounds (QC Lot: 5408356)									
ES2337379-002	ACM-TP03_0.5-0.6	EP075: Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 3- & 4-Methylphenol	1319-77-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Pentachlorophenol	87-86-5	1	mg/kg	<1	<1	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5408356)									
ES2337379-002	ACM-TP03_0.5-0.6	EP075: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075E: Nitroaromatics and Ketones (QC Lot: 5408356)									
ES2337379-002	ACM-TP03_0.5-0.6	EP075: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 2.4-Dinitrotoluene	121-14-2	0.5 (1.0)*	mg/kg	<1.0	<1.0	0.0	No Limit
		EP075: Pentachloronitrobenzene	82-68-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075G: Chlorinated Hydrocarbons (QC Lot: 5408356)									
ES2337379-002	ACM-TP03_0.5-0.6	EP075: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: Pentachlorobenzene	608-93-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075K: Miscellaneous Compounds (QC Lot: 5408356)									
ES2337379-002	ACM-TP03_0.5-0.6	EP075: 1.2.4.5-Tetrachlorobenzene	95-94-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075: 2.3.4.6-Tetrachlorophenol	58-90-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5408626)									
ES2337885-041	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2337379-002	ACM-TP03_0.5-0.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5408626)									
ES2337885-041	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2337379-002	ACM-TP03_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5408626)									
ES2337885-041	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	9	7	22.6	No Limit
ES2337379-002	ACM-TP03_0.5-0.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP132A: Phenolic Compounds (QC Lot: 5408355)									
ES2337379-004	ACM-TP05_0.1-0.2	EP132: Hexachlorophene	70-30-4	10	µg/kg	<0.01 mg/kg	<10	0.0	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 5410646)									
EM2319552-001	Anonymous	EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 5410646) - continued									
EM2319552-001	Anonymous	EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
ES2338099-001	Anonymous	EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5410772)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	100	88.0	113
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.5 mg/kg	130	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	114	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	100	82.0	119
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	2.3 mg/kg	118	77.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	92.8	80.0	120
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.3 mg/kg	150	42.0	158
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5410096)								
EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	118 mg/kg	90.4	85.0	115
EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	1 mg/kg	110	90.0	110
EG005T-MW: Chromium	7440-47-3	2	mg/kg	<2	21 mg/kg	94.3	65.0	135
EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	107	93.0	107
EG005T-MW: Lead	7439-92-1	5	mg/kg	<5	56 mg/kg	88.9	84.0	116
EG005T-MW: Nickel	7440-02-0	2	mg/kg	<2	15.2 mg/kg	89.7	87.0	112
EG005T-MW: Zinc	7440-66-6	5	mg/kg	<5	142.1 mg/kg	106	93.0	107
EA002: pH 1:5 (Soils) (QCLot: 5410765)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	99.6	98.8	101
EA010: Conductivity (1:5) (QCLot: 5410766)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	96.0	92.0	108
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5410771)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	122	70.0	125
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5410097)								
EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.075 mg/kg	97.3	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 5415885)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	106	68.0	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 5412399)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	40 mg/kg	110	81.0	129
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 5412398)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 5412398) - continued								
EK028SF: Weak Acid Dissociable Cyanide	----	1	mg/kg	<1	40 mg/kg	107	70.0	130
EK040T: Fluoride Total (QCLot: 5410679)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	334 mg/kg	71.5	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5408359)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.1	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5408357)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.4	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	92.0	66.0	120
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5408357)								
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	76.0	118
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 5408358)								
EP071SG-S: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.5	80.0	116
EP071SG-S: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	93.1	85.0	115
EP071SG-S: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	95.3	75.0	123
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 5408358)								
EP071SG-S: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.8	89.0	109
EP071SG-S: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	94.8	84.0	112

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 5408358) - continued								
EP071SG-S: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	95.3	71.0	119
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5408625)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.4	71.0	121
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.1	65.0	131
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	72.0	114
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.0	70.0	116
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	94.8	67.0	113
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	97.1	75.0	115
EP074B: Oxygenated Compounds (QCLot: 5408625)								
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	84.3	58.0	136
EP074E: Halogenated Aliphatic Compounds (QCLot: 5408625)								
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	92.4	43.0	147
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	90.2	54.0	126
EP074: Methylene chloride	75-09-2	0.5	mg/kg	<0.5	1 mg/kg	101	58.0	148
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	95.3	65.0	117
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	94.0	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	97.0	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	96.3	70.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	98.5	64.0	126
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	62.0	122
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.3	65.0	121
EP074F: Halogenated Aromatic Compounds (QCLot: 5408625)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.4	68.0	116
EP074G: Trihalomethanes (QCLot: 5408625)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	98.1	66.0	124
EP075A: Phenolic Compounds (QCLot: 5408356)								
EP075: Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	89.2	64.0	114
EP075: 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	94.8	55.0	117
EP075: 3- & 4-Methylphenol	1319-77-3	0.5	mg/kg	<0.5	1.5 mg/kg	81.5	46.0	122
EP075: 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	73.0	57.0	113
EP075: 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	58.1	49.0	109
EP075: 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	64.1	49.0	107

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (QCLot: 5408356) - continued								
EP075: Pentachlorophenol	87-86-5	1	mg/kg	<1	3 mg/kg	29.0	12.0	76.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5408356)								
EP075: Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	88.4	62.0	118
EP075: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	76.6	56.0	114
EP075: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	86.4	62.0	112
EP075: Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	95.4	59.0	115
EP075: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	87.5	63.0	113
EP075: Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	88.4	57.0	111
EP075: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	86.9	58.0	114
EP075: Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	90.6	57.0	117
EP075: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	90.7	59.0	115
EP075: Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	95.6	61.0	117
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	1	mg/kg	<1	3 mg/kg	91.9	57.0	119
EP075: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	95.2	56.0	116
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	84.4	55.0	117
EP075: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	83.4	53.0	119
EP075: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	88.3	56.0	120
EP075C: Phthalate Esters (QCLot: 5408356)								
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	mg/kg	----	1.5 mg/kg	96.7	69.0	133
EP075E: Nitroaromatics and Ketones (QCLot: 5408356)								
EP075: Nitrobenzene	98-95-3	0.5	mg/kg	<0.5	1.5 mg/kg	86.2	65.0	119
EP075: 2.4-Dinitrotoluene	121-14-2	0.5	mg/kg	<0.5	1.5 mg/kg	96.2	59.0	115
EP075: Pentachloronitrobenzene	82-68-8	0.5	mg/kg	<0.5	1.5 mg/kg	99.2	56.0	110
EP075G: Chlorinated Hydrocarbons (QCLot: 5408356)								
EP075: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1.5 mg/kg	87.2	58.0	116
EP075: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1.5 mg/kg	89.7	57.0	115
EP075: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1.5 mg/kg	86.4	62.9	108
EP075: Pentachlorobenzene	608-93-5	0.5	mg/kg	<0.5	1.5 mg/kg	88.4	57.0	109
EP075: 1.2.3.4-Tetrachlorobenzene	634-66-2	0.5	mg/kg	<0.5	----	----	----	----
EP075K: Miscellaneous Compounds (QCLot: 5408356)								
EP075: 1.2.4.5-Tetrachlorobenzene	95-94-3	0.5	mg/kg	<0.5	1.5 mg/kg	76.9	54.0	120
EP075: 2.3.4.6-Tetrachlorophenol	58-90-2	0.5	mg/kg	<0.5	----	----	----	----
EP075: Isodrin	465-73-6	0.5	mg/kg	<0.5	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075K: Miscellaneous Compounds (QCLot: 5408356) - continued								
EP075: Di (2-ethylhexyl) adipate	103-23-1	0.5	mg/kg	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5408626)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5408626)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	105	72.4	133
EP080: BTEXN (QCLot: 5408626)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.0	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.6	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	107	78.8	122
EP132A: Phenolic Compounds (QCLot: 5408355)								
EP132: Hexachlorophene	70-30-4	10	µg/kg	<10	100 µg/kg	19.0	15.6	94.0
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 5410646)								
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	80.3	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	72.0	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	69.6	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	62.0	57.4	139
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	94.3	48.7	129
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	78.4	53.2	128

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5410096)							
ES2337784-001	Anonymous	EG005T-MW: Arsenic	7440-38-2	50 mg/kg	104	70.0	130
		EG005T-MW: Cadmium	7440-43-9	50 mg/kg	107	70.0	130
		EG005T-MW: Chromium	7440-47-3	50 mg/kg	113	70.0	130
		EG005T-MW: Copper	7440-50-8	250 mg/kg	108	70.0	130
		EG005T-MW: Lead	7439-92-1	250 mg/kg	111	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5410096) - continued							
ES2337784-001	Anonymous	EG005T-MW: Nickel	7440-02-0	50 mg/kg	114	70.0	130
		EG005T-MW: Zinc	7440-66-6	250 mg/kg	81.2	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5410771)							
ES2337379-002	ACM-TP03_0.5-0.6	EG035T: Mercury	7439-97-6	10 mg/kg	81.0	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5410097)							
ES2337784-001	Anonymous	EG035T-MW: Mercury	7439-97-6	5 mg/kg	90.9	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 5415885)							
ES2337379-008	ACM-TP08_0.5-0.6	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	70.7	70.0	130
ES2337634-001	Anonymous	EG048G: Hexavalent Chromium	18540-29-9	20 mg/kg	78.0	70.0	130
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 5412399)							
ES2337379-008	ACM-TP08_0.5-0.6	EK026SF: Total Cyanide	57-12-5	40 mg/kg	108	70.0	130
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser (QCLot: 5412398)							
ES2337379-008	ACM-TP08_0.5-0.6	EK028SF: Weak Acid Dissociable Cyanide	----	40 mg/kg	109	70.0	130
EK040T: Fluoride Total (QCLot: 5410679)							
ES2337379-002	ACM-TP03_0.5-0.6	EK040T: Fluoride	16984-48-8	400 mg/kg	# 65.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5408359)							
ES2337379-002	ACM-TP03_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	73.5	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5408357)							
ES2337379-002	ACM-TP03_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	87.6	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	85.0	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.3	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	91.9	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	74.0	70.0	130
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 5408358)							
ES2337379-002	ACM-TP03_0.5-0.6	EP071SG-S: C10 - C14 Fraction	----	480 mg/kg	100	43.0	139
		EP071SG-S: C15 - C28 Fraction	----	3100 mg/kg	101	49.0	131
		EP071SG-S: C29 - C36 Fraction	----	2060 mg/kg	104	64.0	158
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup (QCLot: 5408358)							
ES2337379-002	ACM-TP03_0.5-0.6	EP071SG-S: >C10 - C16 Fraction	----	900 mg/kg	87.7	33.0	137
		EP071SG-S: >C16 - C34 Fraction	----	4320 mg/kg	106	40.0	137
		EP071SG-S: >C34 - C40 Fraction	----	890 mg/kg	107	30.0	190
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5408625)							
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Benzene	71-43-2	2.5 mg/kg	91.7	70.0	130
		EP074: Toluene	108-88-3	2.5 mg/kg	96.3	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074E: Halogenated Aliphatic Compounds (QCLot: 5408625)							
ES2337379-002	ACM-TP03_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	89.8	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.6	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5408625)							
ES2337379-002	ACM-TP03_0.5-0.6	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	70.0	130
EP075A: Phenolic Compounds (QCLot: 5408356)							
ES2337379-002	ACM-TP03_0.5-0.6	EP075: Phenol	108-95-2	10 mg/kg	118	60.0	130
		EP075: 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	125	50.0	130
		EP075: Pentachlorophenol	87-86-5	10 mg/kg	65.9	10.0	130
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5408356)							
ES2337379-002	ACM-TP03_0.5-0.6	EP075: Acenaphthene	83-32-9	10 mg/kg	96.6	50.0	130
		EP075: Pyrene	129-00-0	10 mg/kg	95.2	50.0	130
EP075E: Nitroaromatics and Ketones (QCLot: 5408356)							
ES2337379-002	ACM-TP03_0.5-0.6	EP075: 2.4-Dinitrotoluene	121-14-2	10 mg/kg	103	40.0	130
EP075G: Chlorinated Hydrocarbons (QCLot: 5408356)							
ES2337379-002	ACM-TP03_0.5-0.6	EP075: 1.4-Dichlorobenzene	106-46-7	10 mg/kg	102	60.0	130
		EP075: 1.2.4-Trichlorobenzene	120-82-1	10 mg/kg	122	50.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5408626)							
ES2337379-002	ACM-TP03_0.5-0.6	EP080: C6 - C9 Fraction	----	32.5 mg/kg	73.2	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5408626)							
ES2337379-002	ACM-TP03_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	71.8	61.1	142
EP080: BTEXN (QCLot: 5408626)							
ES2337379-002	ACM-TP03_0.5-0.6	EP080: Benzene	71-43-2	2.5 mg/kg	89.4	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	91.7	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.1	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.2	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.4	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.9	61.1	115
EP132A: Phenolic Compounds (QCLot: 5408355)							
ES2337379-004	ACM-TP05_0.1-0.2	EP132: Hexachlorophene	70-30-4	100 µg/kg	18.8	6.80	91.0
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 5410646)							
EM2319552-001	Anonymous	EP202: 2.4-D	94-75-7	0.1 mg/kg	92.4	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	90.6	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	88.4	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	84.0	49.0	138

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2337379**	Page	: 1 of 14
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 30-Oct-2023
Site	: WYONG TOWN CENTRE	Issue Date	: 02-Sep-2024
Sampler	: JAMES LOONEY	No. of samples received	: 23
Order number	: 60709736 CDRL 1100	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T-MW: Total Metals by nitric acid microw	ES2337784--001	Anonymous	**Zinc**	7440-66-6	43.5 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EK040T: Fluoride Total	ES2337379--002	ACM-TP03_0.5-0.6	**Fluoride**	16984-48-8	65.9 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)						
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	09-Nov-2023	04-Nov-2023	**5**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	09-Nov-2023	05-Nov-2023	**4**	----	----	----
EA010: Conductivity (1:5)						
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	09-Nov-2023	04-Nov-2023	**5**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	09-Nov-2023	05-Nov-2023	**4**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
ACM-TP05_0.1-0.2	07-Nov-2023	04-Nov-2023	**3**	08-Nov-2023	04-Nov-2023	**4**
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6	07-Nov-2023	04-Nov-2023	**3**	09-Nov-2023	04-Nov-2023	**5**
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	07-Nov-2023	05-Nov-2023	**2**	08-Nov-2023	05-Nov-2023	**3**
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved						
ACM-TP05_0.1-0.2	07-Nov-2023	04-Nov-2023	**3**	08-Nov-2023	04-Nov-2023	**4**
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6	07-Nov-2023	04-Nov-2023	**3**	09-Nov-2023	04-Nov-2023	**5**
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	07-Nov-2023	05-Nov-2023	**2**	08-Nov-2023	05-Nov-2023	**3**
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved						
ACM-TP05_0.1-0.2	07-Nov-2023	04-Nov-2023	**3**	08-Nov-2023	04-Nov-2023	**4**
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6	07-Nov-2023	04-Nov-2023	**3**	09-Nov-2023	04-Nov-2023	**5**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP074E: Halogenated Aliphatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	07-Nov-2023	05-Nov-2023	2	08-Nov-2023	05-Nov-2023	3
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved						
ACM-TP05_0.1-0.2	07-Nov-2023	04-Nov-2023	3	08-Nov-2023	04-Nov-2023	4
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6	07-Nov-2023	04-Nov-2023	3	09-Nov-2023	04-Nov-2023	5
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	07-Nov-2023	05-Nov-2023	2	08-Nov-2023	05-Nov-2023	3
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
ACM-TP05_0.1-0.2	07-Nov-2023	04-Nov-2023	3	08-Nov-2023	04-Nov-2023	4
Soil Glass Jar - Unpreserved						
ACM-TP03_0.5-0.6	07-Nov-2023	04-Nov-2023	3	09-Nov-2023	04-Nov-2023	5
Soil Glass Jar - Unpreserved						
ACM-TP08_0.5-0.6	07-Nov-2023	05-Nov-2023	2	08-Nov-2023	05-Nov-2023	3
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
TB - TRIP BLANK	07-Nov-2023	06-Nov-2023	1	08-Nov-2023	06-Nov-2023	2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
TB - TRIP BLANK	07-Nov-2023	06-Nov-2023	1	08-Nov-2023	06-Nov-2023	2
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
TS - TRIP SPIKE 15, TB - TRIP BLANK, TSC - TRIP SPIKE CONTROL 15	07-Nov-2023	06-Nov-2023	1	08-Nov-2023	06-Nov-2023	2

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Matrix Spikes (MS)						
Total Metals by ICP-AES	EG005T	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	09-Nov-2023	✓
Soil Glass Jar - Unpreserved (EA002) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	05-Nov-2023	×	**09-Nov-2023**	09-Nov-2023	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	07-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA010) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	05-Nov-2023	×	**09-Nov-2023**	07-Dec-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) ACM-TP03_0.5-0.6	**28-Oct-2023**	**----**	----	----	**07-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EA055) ACM-TP05_0.1-0.2	**28-Oct-2023**	**----**	----	----	**08-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EA055) ACM-TP08_0.5-0.6	**29-Oct-2023**	**----**	----	----	**08-Nov-2023**	12-Nov-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	25-Apr-2024	✓	**09-Nov-2023**	25-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG005T) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	26-Apr-2024	✓	**09-Nov-2023**	26-Apr-2024	✓
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES							
Soil Glass Jar - Unpreserved (EG005T-MW) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**08-Nov-2023**	25-Apr-2024	✓	**08-Nov-2023**	25-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG005T-MW) ACM-TP08_0.5-0.6	**29-Oct-2023**	**08-Nov-2023**	26-Apr-2024	✓	**08-Nov-2023**	26-Apr-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	25-Nov-2023	✓	**10-Nov-2023**	25-Nov-2023	✓
Soil Glass Jar - Unpreserved (EG035T) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	26-Nov-2023	✓	**10-Nov-2023**	26-Nov-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS							
Soil Glass Jar - Unpreserved (EG035T-MW) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**08-Nov-2023**	25-Apr-2024	✓	**08-Nov-2023**	25-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T-MW) ACM-TP08_0.5-0.6	**29-Oct-2023**	**08-Nov-2023**	26-Apr-2024	✓	**08-Nov-2023**	26-Apr-2024	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**10-Nov-2023**	25-Nov-2023	✓	**10-Nov-2023**	17-Nov-2023	✓
Soil Glass Jar - Unpreserved (EG048G) ACM-TP08_0.5-0.6	**29-Oct-2023**	**10-Nov-2023**	26-Nov-2023	✓	**10-Nov-2023**	17-Nov-2023	✓
EK026SF: Total CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK026SF) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**08-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	22-Nov-2023	✓
Soil Glass Jar - Unpreserved (EK026SF) ACM-TP08_0.5-0.6	**29-Oct-2023**	**08-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	22-Nov-2023	✓
EK028SF: Weak Acid Dissociable CN by Segmented Flow Analyser							
Soil Glass Jar - Unpreserved (EK028SF) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**08-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	22-Nov-2023	✓
Soil Glass Jar - Unpreserved (EK028SF) ACM-TP08_0.5-0.6	**29-Oct-2023**	**08-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	22-Nov-2023	✓
EK040T: Fluoride Total							
Soil Glass Jar - Unpreserved (EK040T) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	25-Nov-2023	✓	**09-Nov-2023**	25-Nov-2023	✓
Soil Glass Jar - Unpreserved (EK040T) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	26-Nov-2023	✓	**09-Nov-2023**	26-Nov-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP066) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP068) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP068) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071SG-S) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
EP071 SG-S: Total Petroleum Hydrocarbons in Soil - Silica gel cleanup							
Soil Glass Jar - Unpreserved (EP071SG-S) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071SG-S) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**08-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	05-Nov-2023	×	**08-Nov-2023**	05-Nov-2023	×
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**08-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	05-Nov-2023	×	**08-Nov-2023**	05-Nov-2023	×
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**08-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	05-Nov-2023	×	**08-Nov-2023**	05-Nov-2023	×
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**08-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	05-Nov-2023	×	**08-Nov-2023**	05-Nov-2023	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**08-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	04-Nov-2023	×	**09-Nov-2023**	04-Nov-2023	×
Soil Glass Jar - Unpreserved (EP074) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	05-Nov-2023	×	**08-Nov-2023**	05-Nov-2023	×
EP075A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP075C: Phthalate Esters							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP075E: Nitroaromatics and Ketones							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP075G: Chlorinated Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075K: Miscellaneous Compounds							
Soil Glass Jar - Unpreserved (EP075) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**10-Nov-2023**	17-Dec-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) TB - TRIP BLANK	**23-Oct-2023**	**07-Nov-2023**	06-Nov-2023	×	**08-Nov-2023**	06-Nov-2023	×
Soil Glass Jar - Unpreserved (EP080) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**08-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**08-Nov-2023**	12-Nov-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TB - TRIP BLANK	**23-Oct-2023**	**07-Nov-2023**	06-Nov-2023	×	**08-Nov-2023**	06-Nov-2023	×
Soil Glass Jar - Unpreserved (EP080) ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**08-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) ACM-TP03_0.5-0.6	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	11-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**08-Nov-2023**	12-Nov-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TS - TRIP SPIKE 15, TB - TRIP BLANK, TSC - TRIP SPIKE CONTROL 15	**23-Oct-2023**	**07-Nov-2023**	06-Nov-2023	×	**08-Nov-2023**	06-Nov-2023	×
EP132A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP132) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**07-Nov-2023**	11-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP132) ACM-TP08_0.5-0.6	**29-Oct-2023**	**07-Nov-2023**	12-Nov-2023	✓	**09-Nov-2023**	17-Dec-2023	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202) ACM-TP03_0.5-0.6, ACM-TP05_0.1-0.2	**28-Oct-2023**	**09-Nov-2023**	11-Nov-2023	✓	**13-Nov-2023**	19-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP202) ACM-TP08_0.5-0.6	**29-Oct-2023**	**09-Nov-2023**	12-Nov-2023	✓	**13-Nov-2023**	19-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Low level CHC (SIM)	EP074E(SIM)	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	16	**18.75**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Low level CHC (SIM)	EP074E(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Low level CHC (SIM)	EP074E(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Low level CHC (SIM)	EP074E(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Cyanide by Segmented Flow Analyser	EK026SF	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Fluoride	EK040T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	0	16	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
WAD Cyanide by Segmented Flow Analyser	EK028SF	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	SOIL	In house: Referenced to USEPA SW846 - 3051 (Microware Digestion); APHA 3120; USEPA SW846 - 6010. Metals in solids are determined following a microware digestion. The ICPAES technique ionizes selected elements. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass / charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	SOIL	In house: Referenced to USEPA SW846 - 3051 (Microware Digestion); APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following a microware digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	In house: Referenced to APHA 4500-CN C / ASTM D7511 / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
WAD Cyanide by Segmented Flow Analyser	EK028SF	SOIL	In house: Referenced to APHA 4500-CN C&O / ISO 14403. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Hydrogen cyanide is liberated from a slightly acidified (pH 4.5) and is dialysed. Tight cyanide complexes that would not be amenable to oxidation by chlorine are not converted. Iron cyanide complexes are precipitated with zinc acetate. Liberated HCN diffuses through a membrane into a stream of sodium hydroxide where it is carried as CN- The cyanide in caustic solution is buffered to pH 5.2 and further converted to cyanogen chloride by reaction with chloramine-T. Cyanogen chloride subsequently reacts with 4-pyridine carboxylic and 1,3-dimethylbarbituric acids to give a red colour complex. This colour is measured at 600 nm. This method is compliant with NEPM Schedule B(3).
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction (Silica Gel Clean Up)	EP071SG-S	SOIL	In house: Referenced to USEPA SW 846 - 8015. Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Low level CHC (SIM)	EP074E(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Semivolatile Organic Compounds	EP075	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	SOIL	In house: Referenced to USEPA 8270 GCMS Capiliary column, SIM mode.

Analytical Methods	Method	Matrix	Method Descriptions
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
NSW Waste Classification Guidelines - Aggregate Sums	* NSW-WCG	SOIL	In house: This method provides rounded sums for diverse trace organics to suit NSW Waste Classification Guidelines.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In house: APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	In house: Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Microwave Digest for Metals in Soils, Sediments and Sludges	EN31	SOIL	In house: Referenced to USEPA SW 846 - 3051. Microwave Assisted Nitric Acid Digestion 1.0g of sample is mixed with 10 mL conc. Nitric acid in a closed, high pressure vessel, and heated using a specific program. Digest is appropriate for selected metals analysis in sludge, sediments, soils and oils. This method is compliant with NEPM Schedule B(3).
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids/ Acetylation	ORG17A-AC	SOIL	In house: Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to 1 mL with exchange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2337379**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james.looney@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736	Page	: 1 of 3
Order number	: 60709736 CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WYONG TOWN CENTRE		
Sampler	: JAMES LOONEY		

Dates

Date Samples Received	: 30-Oct-2023 16:03	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 10-Nov-2023	Scheduled Reporting Date	: **10-Nov-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 11.5'C, 0.5'C, -1.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 23 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample 14, QC400_28/10/23 and sample 15 QC400_29/10/23 was split into ALS spikes, blanks & spike controls**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Fluoride analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2337379-016 : [23-Oct-2023] : TSC - TRIP SPIKE CONTROL 15
ES2337379-019 : [23-Oct-2023] : TSC - TRIP SPIKE CONTROL 14

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - P- 7/3 - Long Suite NSW DECCW Waste Classification (SCC) -	SOIL - P-18/1b COMP NO FMT Excavated Natural Material Order 2014 -	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2337379-001	28-Oct-2023 00:00	ACM-TP03_0.1-0.2	✓					
ES2337379-002	28-Oct-2023 00:00	ACM-TP03_0.5-0.6		✓		✓	✓	
ES2337379-003	28-Oct-2023 00:00	ACM-TP03_1.0-1.1	✓					
ES2337379-004	28-Oct-2023 00:00	ACM-TP05_0.1-0.2		✓		✓	✓	
ES2337379-005	28-Oct-2023 00:00	ACM-TP05_0.5-0.6	✓					
ES2337379-006	28-Oct-2023 00:00	ACM-TP05_1.0-1.1	✓					
ES2337379-007	29-Oct-2023 00:00	ACM-TP08_0.1-0.2	✓					
ES2337379-008	29-Oct-2023 00:00	ACM-TP08_0.5-0.6		✓		✓	✓	
ES2337379-009	28-Oct-2023 00:00	QC100_28/10/23	✓					
ES2337379-010	29-Oct-2023 00:00	QC100_29/10/23	✓					
ES2337379-011	29-Oct-2023 00:00	QC200_29/10/23	✓					
ES2337379-014	23-Oct-2023 00:00	TS TRIP SPIKE 15			✓			
ES2337379-015	23-Oct-2023 00:00	TB TRIP BLANK						✓
ES2337379-016	23-Oct-2023 00:00	TSC TRIP SPIKE CONT...			✓			
ES2337379-017	23-Oct-2023 00:00	TS TRIP SPIKE 14	✓					
ES2337379-018	23-Oct-2023 00:00	TB TRIP BLANK 2	✓					
ES2337379-019	23-Oct-2023 00:00	TSC TRIP SPIKE CONT...	✓					

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2337379-012	28-Oct-2023 00:00	QC300_28/10/23	✓
ES2337379-013	29-Oct-2023 00:00	QC300_29/10/23	✓
ES2337379-020	25-Oct-2023 00:00	TS2 TRIP SPIKE 2	✓
ES2337379-021	25-Oct-2023 00:00	TB TRIP BLANK	✓

			(On Hold) WATER No analysis requested
ES2337379-022	25-Oct-2023 00:00	TS3 TRIP SPIKE 3	✓
ES2337379-023	25-Oct-2023 00:00	TB TRIB BLANK 2	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- A4 - AU Tax Invoice (INV)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

JAMES LOONEY

- *AU Certificate of Analysis - NATA (COA)	Email	james.looney@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james.looney@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james.looney@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	james.looney@aecom.com
- A4 - AU Tax Invoice (INV)	Email	james.looney@aecom.com
- Chain of Custody (CoC) (COC)	Email	james.looney@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	james.looney@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	james.looney@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EK040T: Fluoride Total

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT:	AECOM Australia	OFFICE:	Level 5, 420 George Street, Sydney
PROJECT MANAGER (PM):	James Jentz	SITE:	Wyong Town Centre
PROJECT NUMBER & TASK CODE:	60709736	P.O. NO.:	60709736 CDRL 1100
RESULTS REQUIRED (Date):		QUOTE NO.:	

SAMPLER:	James Looney		
MOBILE:	0437 147 055	PHONE:	
EMAIL REPORT TO:	james.looney@aecom.com; fahim.rashid@aecom.com		

Destination Laboratory

ALS

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

On Ice

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION			
Lab ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	HOLD	
1	ACM-TP03_0.1-0.2	S	28/10/23			4	X	3 jars, 1 bag
2	ACM-TP03_0.5-0.6	S	28/10/23			4	X	3 jars, 1 bag
3	ACM-TP03_1.0-1.1	S	28/10/23			4	X	3 jars, 1 bag
4	ACM-TP05_0.1-0.2	S	28/10/23			4	X	3 jars, 1 bag
5	ACM-TP05_0.5-0.6	S	28/10/23			4	X	3 jars, 1 bag
6	ACM-TP05_1.0-1.1	S	28/10/23			4	X	3 jars, 1 bag
7	ACM-TP08_0.1-0.2	S	29/10/23			4	X	3 jars, 1 bag
8	ACM-TP08_0.5-0.26	S	29/10/23			4	X	3 jars, 1 bag
9	QC100_28/10/23	S	28/10/23			4	X	3 jars, 1 bag
10	QC100_29/10/23	S	29/10/23			4	X	3 jars, 1 bag
11	QC200_29/10/23	S	29/10/23			4	X	3 jars, 1 bag
12	QC300_28/10/23	S	28/10/23			4	X	
13	QC300_29/10/23	S	29/10/23			4	X	
14	QC400_28/10/23	S	28/10/23			2	X	
15	QC400_29/10/23	S	29/10/23			2	X	

Environmental Division
Sydney
Work Order Reference
ES2337379

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: Wcas	Date: 30/10/23	Name:	Date:	Con' Note No:
Of:	Time:	Of: ALS	Time: 1603	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic

V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Soil Container Codes: Jar = Unpreserved glass jar

UPDATED COC



Rec: RN
1/11/23
1905

Environmental Division
Sydney
Work Order Reference
ES2337379

Telephone : +61-2-8784 8555

From: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Sent: Wednesday, 1 November 2023 4:14 PM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Rashid, Fahim <Fahim.Rashid@aecom.com>; McDonald, Campbell <Campbell.McDonald@aecom.com>
Subject: [EXTERNAL] - RE: ES2337379 - COC ON HOLD
Importance: High

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Loren,
Can you please schedule the following analysis:

ACM-TP03_0.5-06 – Waste Class (P-7/3 long) / ENM (P-18/1)

ACM-TP05_0.1-0.2 - Waste Class (P-7/3 long) / ENM (P-18/1)

ACM-TP08_0.5-0.6 - Waste Class (P-7/3 long) / ENM (P-18/1)

I assume there will be cost savings due to the duplication of analytes in the above mentioned suite? (i.e. less than the quote for each suite).

Thanks

Regards,

Mark Tiedeman

Principal Environmental Scientist, ANZ NAC
M +61488210170
mark.tiedeman@aecom.com

AECOM
Level 8, 6 Stewart Avenue
Newcastle West, 2302, Australia
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

2023 WORLD'S MOST ETHICAL COMPANIES
ETHISPHERE

From: Rashid, Fahim <Fahim.Rashid@aecom.com>
Sent: Tuesday, 31 October 2023 2:52 PM
To: McDonald, Campbell <Campbell.McDonald@aecom.com>; Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: FW: ES2337379 - COC ON HOLD

Hi Mark/Campbell,

See below CoC for Wyong from the weekend. Are you able to schedule the lab testing?

Thanks

Fahim Rashid

Senior Geotechnical Engineer
M +61 412 577 184
fahim.rashid@aecom.com

AECOM
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Tuesday, 31 October 2023 2:43 PM
To: Rashid, Fahim <Fahim.Rashid@aecom.com>
Subject: ES2337379 - COC ON HOLD

Hi Fahim,
Sample receipt has let me know of another work order we currently have on hold. Can you please provide an updated COC with analysis at your earliest convenience?
Thanks.

UPDATED COC



Rec: RN
1/11/23
1905

Environmental Division
Sydney
Work Order Reference
ES2337379

Telephone : +61-2-8784 8555

From: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Sent: Wednesday, 1 November 2023 4:14 PM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Rashid, Fahim <Fahim.Rashid@aecom.com>; McDonald, Campbell <Campbell.McDonald@aecom.com>
Subject: [EXTERNAL] - RE: ES2337379 - COC ON HOLD
Importance: High

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Loren,
Can you please schedule the following analysis:

2 ACM-TP03_0.5-06 – Waste Class (P-7/3 long) / ENM (P-18/1)

4 ACM-TP05_0.1-0.2 - Waste Class (P-7/3 long) / ENM (P-18/1)

8 ACM-TP08_0.5-0.6 - Waste Class (P-7/3 long) / ENM (P-18/1)

Email / Courier / Split WO
Lab / Analysis: Fluoride 2 Newcastle
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attach By PO / External Sheet:

I assume there will be cost savings due to the duplication of analytes in the above mentioned suite? (i.e. less than the quote for each suite).

Thanks

Regards,

Mark Tiedeman

Principal Environmental Scientist, ANZ NAC
M +61488210170
mark.tiedeman@aecom.com

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aecom.com

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ETHISPHERE

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Sent: Tuesday, 31 October 2023 2:52 PM
To: McDonald, Campbell <Campbell.McDonald@aecom.com>; Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: FW: ES2337379 - COC ON HOLD

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See below CoC for Wyong from the weekend. Are you able to schedule the lab testing?

Thanks

Fahim Rashid

Senior Geotechnical Engineer
M +61 412 577 184
fahim.rashid@aecom.com

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aecom.com

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From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Tuesday, 31 October 2023 2:43 PM
To: Rashid, Fahim <Fahim.Rashid@aecom.com>
Subject: ES2337379 - COC ON HOLD

Hi Fahim,
Sample receipt has let me know of another work order we currently have on hold. Can you please provide an updated COC with analysis at your earliest convenience?
Thanks.

ANZ

FQM - Genèric Chain of Custody Form

CONSULTANT:	AECOM Australia	OFFICE:	Level 5, 420 George Street, Sydney
PROJECT MANAGER (PM):	James Jentz	SITE:	Wyong Town Centre
PROJECT NUMBER & TASK CODE:	60709736	P.O. NO.:	60709736 CDRL 1100
RESULTS REQUIRED (Date):		QUOTE NO.:	

SAMPLER:	James Looney		Destinatio
MOBILE:	0437 147 055	PHONE:	AL
EMAIL REPORT TO:	james.looney@aecom.com; fahim.rashid@aecom.com		

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate):

Intact: Yes No N/A

SAMPLE TEMPERATURE:

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

On Ice

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		HOLD	Notes: e.g. Highly cc e.g. "High PAHs exp Extra volume for QC
Lab ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles		
1	ACM-TP03_0.1-0.2	S	28/10/23			4	X	3 jars, 1 b
2	ACM-TP03_0.5-0.6	S	28/10/23			4	X	3 jars, 1 b
3	ACM-TP03_1.0-1.1	S	28/10/23			4	X	3 jars, 1 b
4	ACM-TP05_0.1-0.2	S	28/10/23			4	X	3 jars, 1 b
5	ACM-TP05_0.5-0.6	S	28/10/23			4	X	3 jars, 1 b
6	ACM-TP05_1.0-1.1	S	28/10/23			4	X	3 jars, 1 l
7	ACM-TP08_0.1-0.2	S	29/10/23			4	X	3 jars, 1 b
8	ACM-TP08_0.5-0.26	S	29/10/23			4	X	3 jars, 1 b
9	QC100_28/10/23	S	28/10/23			4	X	3 jars, 1 b
10	QC100_29/10/23	S	29/10/23			4	X	3 jars, 1 b
11	QC200_29/10/23	S	29/10/23			4	X	3 jars, 1 b
12	QC300_28/10/23	S	28/10/23			4	X	
13	QC300_29/10/23	S	29/10/23			4	X	
14	QC400_28/10/23	S	28/10/23			2	X	
15	QC400_29/10/23	S	29/10/23			2	X	

Environmental Division
Sydney
Work Order Reference
ES2337379

Telephone : +61-2-8784 8555

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



CERTIFICATE OF ANALYSIS

Work Order	: **ES2341039**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 27-Nov-2023 13:45
Order number	: 60709736 CDRL 1100	Date Analysis Commenced	: 29-Nov-2023
C-O-C number	: ----	Issue Date	: 04-Dec-2023 13:52
Sampler	: JAMES LOONEY		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EN33: Where leachable PFAS analysis is requested, centrifugation rather than pressure filtration is used as the default approach for removal of particulates, in line with AS 4439.3.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP03_0.5-0.6 ACM-TP03_0.4-0.5	ACM-TP05_0.1-0.2	ACM-TP08_0.5-0.6	----	----
				Sampling date / time	28-Oct-2023 00:00	28-Oct-2023 00:00	29-Oct-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2341039-001	ES2341039-002	ES2341039-003	--------	--------
					Result	Result	Result	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	**No**	**No**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-		**No**	**No**	**No**	**----**	**----**
Asbestos Type	1332-21-4	-	--		**-**	**-**	**-**	**----**	**----**
Synthetic Mineral Fibre	----	-	--		**No**	**No**	**No**	**----**	**----**
Organic Fibre	----	-	--		**No**	**No**	**No**	**----**	**----**
Sample weight (dry)	----	0.01	g		**621**	**571**	**468**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--		**B.SCHRADER**	**B.SCHRADER**	**B.SCHRADER**	**----**	**----**
EN33: TCLP Leach - Inorganics/PFAS (Plastic Vessel)									
Initial pH	----	0.1	pH Unit		**----**	**7.1**	**----**	**----**	**----**
After HCl pH	----	0.1	pH Unit		**----**	**1.5**	**----**	**----**	**----**
Extraction Fluid Number	----	1	-		**----**	**1**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit		**----**	**5.0**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	ACM-TP05_0.1-0.2	----	----	----	----
				Sampling date / time	28-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2341039-002	--------	--------	--------	--------
					Result	----	----	----	----
EG005(ED093)C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	**----**	**----**	**----**	**----**
Lead	7439-92-1	0.1	mg/L		<0.1	**----**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM-TP03_0.5-0.6ACM-TP03_0.4-0.5 - 28-Oct-2023 00:00	A soil sample.
EA200: Description	ACM-TP05_0.1-0.2 - 28-Oct-2023 00:00	A soil sample.
EA200: Description	ACM-TP08_0.5-0.6 - 29-Oct-2023 00:00	A soil sample.

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2341039**	Page	: 1 of 3
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 27-Nov-2023
Order number	: 60709736 CDRL 1100	Date Analysis Commenced	: 29-Nov-2023
C-O-C number	: ----	Issue Date	: 04-Dec-2023
Sampler	: JAMES LOONEY		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 5465875)									
EP2315467-010	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2341104-009	Anonymous	EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	4.6	4.6	0.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5465875)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.1 mg/L	118	80.0	124
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	112	80.0	118

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5465875)							
EP2315467-023	Anonymous	EG005C: Arsenic	7440-38-2	1 mg/L	112	70.0	130
		EG005C: Lead	7439-92-1	1 mg/L	113	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2341039**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 27-Nov-2023
Site	: WYONG TOWN CENTRE	Issue Date	: 04-Dec-2023
Sampler	: JAMES LOONEY	No. of samples received	: 3
Order number	: 60709736 CDRL 1100	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM-TP03_0.5-0.6 - ACM-TP03_0.4-0.5, ACM-TP05_0.1-0.2	**28-Oct-2023**	**----**	----	**----**	**29-Nov-2023**	25-Apr-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM-TP08_0.5-0.6	**29-Oct-2023**	**----**	----	**----**	**29-Nov-2023**	26-Apr-2024	✓
EN33: TCLP Leach - Inorganics/PFAS (Plastic Vessel)							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-P) ACM-TP05_0.1-0.2	**28-Oct-2023**	**01-Dec-2023**	25-Apr-2024	✓	**----**	----	**----**

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C) ACM-TP05_0.1-0.2	**01-Dec-2023**	**04-Dec-2023**	29-May-2024	✓	**04-Dec-2023**	29-May-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
TCLP for Non & Semivolatile Analytes - Plastic Leaching Vessel	EN33a-P	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2341039**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james.looney@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736	Page	: 1 of 2
Order number	: 60709736 CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WYONG TOWN CENTRE		
Sampler	: JAMES LOONEY		

Dates

Date Samples Received	: 27-Nov-2023 13:45	Issue Date	: 27-Nov-2023
Client Requested Due Date	: 04-Dec-2023	Scheduled Reporting Date	: **04-Dec-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1'C
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **This work order is a rebatch of samples 2,4 & 8 from work order ES2337379.**
- **Sample ID ACM-TP03_0.5-0.6 on the COC was received labelled as ACM-TP03_0.4-0.5 on the Asbestos bag.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2341039-001 : [28-Oct-2023] : ACM-TP03_0.5-0.6 - ACM-TP03_0.4-0.5

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN33a-P TCLP Leachate - Plastic Leaching Vessel
ES2341039-001	28-Oct-2023 00:00	ACM-TP03_0.5-0.6 AC...	✓		
ES2341039-002	28-Oct-2023 00:00	ACM-TP05_0.1-0.2	✓	✓	✓
ES2341039-003	29-Oct-2023 00:00	ACM-TP08_0.5-0.6	✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- A4 - AU Tax Invoice (INV)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

JAMES LOONEY

- *AU Certificate of Analysis - NATA (COA)	Email	james.looney@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james.looney@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james.looney@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	james.looney@aecom.com
- Chain of Custody (CoC) (COC)	Email	james.looney@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	james.looney@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	james.looney@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

Fadi Soro

Fadi
27/11/23
1:45p

From: Loren Schiavon
Sent: Monday, 27 November 2023 1:04 PM
To: rebatches.sydney
Subject: FW: [EXTERNAL] - RE: - FW: - RE: ES2337379 - COC ON HOLD

Importance: High

Environmental Division
Sydney
Work Order Reference
ES2341039

Telephone : +61-2-8784 8555

Hi Guys,

Can you please arrange this rebatch for me?

ES2337379

	Sample	Sub-Matrix	Status	Date	Highly Impacted	Name	
	002	SOIL	Logged	28/10/2023	☐	ACM-TP03_0.5-0.6	1
	004	SOIL	Logged	28/10/2023	☐	ACM-TP05_0.1-0.2	2
	008	SOIL	Logged	29/10/2023	☐	ACM-TP08_0.5-0.6	3

Sydney samples are in trays: S-1381 S-1382 V-056c V-056b M-067a SV-132 S-1383 EN

Workorder	Login	☐	ES2337379

Not sure if the asbestos bags are in Sydney or already sent to Newcastle?

The client has requested a standard TAT. Please log for 5 days (I have confirmed the TCLP TAT already).

Thanks.

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Sent: Monday, 27 November 2023 11:07 AM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: [EXTERNAL] - RE: - FW: - RE: ES2337379 - COC ON HOLD
Importance: High

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Thanks Loren,
Can you please schedule:

- Leachate analysis on ACM-TP05_0.1-0.2 for lead and arsenic

- Asbestos (absence / presence) for:
  - ACM-TP03_0.5-0.6
  - ACM-TP05_0.1-0.2
  - ACM-TP08_0.5-0.6

Regards,

Mark Tiedeman

Principal Environmental Scientist, ANZ NAC
M +61488210170
mark.tiedeman@aecom.com

AECOM
Level 8, 6 Stewart Avenue
Newcastle West, 2302, Australia
aecom.com

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2023 WORLD'S MOST ETHICAL COMPANIES® ETHISPHERE

From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Monday, 27 November 2023 10:57 AM
To: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Cc: McFarland, Ross <Ross.McFarland@aecom.com>
Subject: RE: - FW: - RE: ES2337379 - COC ON HOLD

Hi Mark,

Please see attached. Let me know if you need anything else!

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Sent: Monday, 27 November 2023 10:27 AM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: McFarland, Ross <Ross.McFarland@aecom.com>
Subject: [EXTERNAL] - FW: - RE: ES2337379 - COC ON HOLD

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Loren,
Can you please email me these results?

Thanks

Regards,

Mark Tiedeman

Principal Environmental Scientist, ANZ NAC
M +61488210170
mark.tiedeman@aecom.com

AECOM
Level 8, 6 Stewart Avenue
Newcastle West, 2302, Australia
aecom.com

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2023 WORLD'S MOST ETHICAL COMPANIES
ETHISPHERE

From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Wednesday, 1 November 2023 7:04 PM
To: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Cc: Rashid, Fahim <Fahim.Rashid@aecom.com>; McDonald, Campbell <Campbell.McDonald@aecom.com>
Subject: RE: - RE: ES2337379 - COC ON HOLD

Hi Mark,

I'll arrange to have this testing added for you.

The packages would show up as a single line item in our system, but I will ask our invoicing team to manually adjust the invoices so as to avoid any duplications.

Thanks.

Kind regards,

right solutions. right partner.

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Sent: Wednesday, 1 November 2023 4:14 PM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Rashid, Fahim <Fahim.Rashid@aecom.com>; McDonald, Campbell <Campbell.McDonald@aecom.com>
Subject: [EXTERNAL] - RE: ES2337379 - COC ON HOLD
Importance: High

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Loren,
Can you please schedule the following analysis:

ACM-TP03_0.5-06 – Waste Class (P-7/3 long) / ENM (P-18/1)

ACM-TP05_0.1-0.2 - Waste Class (P-7/3 long) / ENM (P-18/1)

ACM-TP08_0.5-0.6 - Waste Class (P-7/3 long) / ENM (P-18/1)

I assume there will be cost savings due to the duplication of analytes in the above mentioned suite? (i.e. less than the quote for each suite).

Thanks

Regards,

Mark Tiedeman

Principal Environmental Scientist, ANZ NAC
M +61488210170
mark.tiedeman@aecom.com

AECOM
Level 8, 6 Stewart Avenue
Newcastle West, 2302, Australia
aecom.com

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2023 WORLD'S MOST ETHICAL COMPANIES® ETHISPHERE

From: Rashid, Fahim <Fahim.Rashid@aecom.com>
Sent: Tuesday, 31 October 2023 2:52 PM
To: McDonald, Campbell <Campbell.McDonald@aecom.com>; Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: FW: ES2337379 - COC ON HOLD

Hi Mark/Campbell,

See below CoC for Wyong from the weekend. Are you able to schedule the lab testing?

Thanks

Fahim Rashid

Senior Geotechnical Engineer
M +61 412 577 184
fahim.rashid@aecom.com

AECOM
aecom.com

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From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Tuesday, 31 October 2023 2:43 PM
To: Rashid, Fahim <Fahim.Rashid@aecom.com>
Subject: ES2337379 - COC ON HOLD

Hi Fahim,
Sample receipt has let me know of another work order we currently have on hold. Can you please provide an updated COC with analysis at your earliest convenience?
Thanks.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2341790**	Page	: 1 of 34
Amendment	: **6**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9645
Project	: 60709736 - CDRL 400	Date Samples Received	: 01-Dec-2023 15:50
Order number	: 60709736 - CDRL 400	Date Analysis Commenced	: 09-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 09:55
Sampler	: AECOM Geotech Team		
Site	: WYONG		
Quote number	: ME/624/21 - AMPOL		
No. of samples received	: 34		
No. of samples analysed	: 21		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
John Williams	Lab Technician	Newcastle - Asbestos, Mayfield West, NSW
John Williams	Lab Technician	Newcastle - Inorganics, Mayfield West, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG005T: Poor precision was obtained for Lead on sample ES2344316 #14. Confirmed by redigestion and reanalysis.
- EA155: Potentially asbestos containing bulk solid material was found in sample ES2341790-028 when conducting the FMT analysis and this will be tested separately as sample ES2341790-034.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (22/01/2023): This report has been amended and re-released to allow the reporting of additional analytical data, for samples QC300_20231130 & QC300_20231101 previously on hold.
- Amendment (01/02/2024): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG005T, EG035T, and EA155 for samples 022, and 028.
- Amendment (08/02/2024): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EA200B on sample A-BH16B_0.0-1.0 fragment.
- Amendment (21/02/2024): This report has been amended and re-released to allow the reporting of additional analytical data, specifically EA155-ENM for sample 28, A-BH16B_0.0-1.0

- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 002, 022-025, 028-031, 034. All analysis results are as per the previous report.
- Amendment (22/12/2023): This report has been amended following the addition of analysis to samples previously on HOLD as an updated COC has been provided by Eric Serttas.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
			Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	5.5	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	----	13.9	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	15.2	----	----	----
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	----	----	----	<0.05	----
Plastic	----	0.05	%	----	----	----	<0.05	----
Bitumen	----	0.05	%	----	----	----	<0.05	----
Paint	----	0.05	%	----	----	----	<0.05	----
Paper and Cardboard	----	0.05	%	----	----	----	<0.05	----
Cloth	----	0.05	%	----	----	----	<0.05	----
Wood	----	0.05	%	----	----	----	<0.05	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	No
Asbestos Type	1332-21-4	-	--	-	-	----	----	-
Asbestos (Trace)	1332-21-4	-	-	No	No	----	----	No
Sample weight (dry)	----	0.01	g	532	467	----	----	401
Synthetic Mineral Fibre	----	-	--	No	No	----	----	No
Organic Fibre	----	-	--	No	No	----	----	No
APPROVED IDENTIFIER:	----	-	--	J. WILLIAMS	J. WILLIAMS	----	----	J. WILLIAMS
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	----	----	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	----	----	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	----	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EA200N: Asbestos Quantification (non-NATA) - Continued									
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)		<0.01	<0.01	----	----	<0.01
ø Weight Used for % Calculation	----	0.0001	kg		**0.532**	**0.467**	----	----	**0.401**
ø Fibrous Asbestos >7mm	----	0.0004	g		<0.0004	<0.0004	----	----	<0.0004
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		----	----	**0.6**	----	----
Exchangeable Magnesium	----	0.1	meq/100g		----	----	**5.4**	----	----
Exchangeable Potassium	----	0.1	meq/100g		----	----	**0.2**	----	----
Exchangeable Sodium	----	0.1	meq/100g		----	----	**1.3**	----	----
Cation Exchange Capacity	----	0.1	meq/100g		----	----	**7.7**	----	----
Exchangeable Sodium Percent	----	0.1	%		----	----	**17.1**	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	**13**	**10**	----	----
Cadmium	7440-43-9	1	mg/kg		----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		----	**14**	**16**	----	----
Copper	7440-50-8	5	mg/kg		----	**21**	**18**	----	----
Lead	7439-92-1	5	mg/kg		----	**23**	**24**	----	----
Nickel	7440-02-0	2	mg/kg		----	**23**	**11**	----	----
Zinc	7440-66-6	5	mg/kg		----	**78**	**56**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**118**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**110**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**81.0**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH13_0.0-0.2	A-BH13_1.0-1.2	A-BH13_2.0-2.2	A-BH13_1.0-2.0	A-BH14_0.0-0.1
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-001	ES2341790-002	ES2341790-003	ES2341790-006	ES2341790-008
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		----	**84.1**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**90.2**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**86.8**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**97.5**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	**111**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	**99.7**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**96.6**	**93.8**	----	----
Toluene-D8	2037-26-5	0.2	%		----	**92.7**	**90.8**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	**107**	**107**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
			Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	5.3	----	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	23.3	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.1	----	----	----	20.0
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	----	----	<0.05	----	----
Plastic	----	0.05	%	----	----	<0.05	----	----
Bitumen	----	0.05	%	----	----	<0.05	----	----
Paint	----	0.05	%	----	----	<0.05	----	----
Paper and Cardboard	----	0.05	%	----	----	<0.05	----	----
Cloth	----	0.05	%	----	----	<0.05	----	----
Wood	----	0.05	%	----	----	<0.05	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	No
Asbestos Type	1332-21-4	-	--	----	----	----	-	-
Asbestos (Trace)	1332-21-4	-	-	----	----	----	No	No
Sample weight (dry)	----	0.01	g	----	----	----	559	418
Synthetic Mineral Fibre	----	-	--	----	----	----	No	No
Organic Fibre	----	-	--	----	----	----	No	No
APPROVED IDENTIFIER:	----	-	--	----	----	----	J. WILLIAMS	J. WILLIAMS
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	----	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	----	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	<0.1	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EA200N: Asbestos Quantification (non-NATA) - Continued									
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)		----	----	----	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg		----	----	----	**0.559**	**0.418**
ø Fibrous Asbestos >7mm	----	0.0004	g		----	----	----	<0.0004	<0.0004
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		----	**1.7**	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g		----	**8.0**	----	----	----
Exchangeable Potassium	----	0.1	meq/100g		----	**0.3**	----	----	----
Exchangeable Sodium	----	0.1	meq/100g		----	**2.1**	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g		----	**12.1**	----	----	----
Exchangeable Sodium Percent	----	0.1	%		----	**17.5**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**76**	<5	----	----	**34**
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg		**9**	**4**	----	----	**12**
Copper	7440-50-8	5	mg/kg		**66**	**8**	----	----	**66**
Lead	7439-92-1	5	mg/kg		**86**	**7**	----	----	**335**
Nickel	7440-02-0	2	mg/kg		**10**	<2	----	----	**9**
Zinc	7440-66-6	5	mg/kg		**228**	**16**	----	----	**1610**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**114**	----	----	----	**107**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**103**	----	----	----	**95.1**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**138**	----	----	----	**106**
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH14_1.0-1.2	A-BH14_2.0-2.2	A-BH14_1.0-2.0	R-BH20B_0.1-0.2	R-BH20B_0.5-0.6
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	30-Nov-2023 00:00	30-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-009	ES2341790-010	ES2341790-013	ES2341790-015	ES2341790-016
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		**80.8**	----	----	----	**97.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		**91.1**	----	----	----	**98.7**
2.4.6-Tribromophenol	118-79-6	0.5	%		**79.1**	----	----	----	**80.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**84.0**	----	----	----	**100**
Anthracene-d10	1719-06-8	0.5	%		**110**	----	----	----	**104**
4-Terphenyl-d14	1718-51-0	0.5	%		**99.1**	----	----	----	**110**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**100**	**93.1**	----	----	**98.8**
Toluene-D8	2037-26-5	0.2	%		**92.6**	**90.7**	----	----	**98.1**
4-Bromofluorobenzene	460-00-4	0.2	%		**105**	**104**	----	----	**109**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
			Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**5.5**	----	----	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	**12.7**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	**17.4**	**10.3**	**8.2**
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	----	<0.05	----	----	----
Plastic	----	0.05	%	----	<0.05	----	----	----
Bitumen	----	0.05	%	----	<0.05	----	----	----
Paint	----	0.05	%	----	<0.05	----	----	----
Paper and Cardboard	----	0.05	%	----	<0.05	----	----	----
Cloth	----	0.05	%	----	<0.05	----	----	----
Wood	----	0.05	%	----	<0.05	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	**No**	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Asbestos (Trace)	1332-21-4	-	-	----	----	**No**	----	----
Sample weight (dry)	----	0.01	g	----	----	**308**	----	----
Synthetic Mineral Fibre	----	-	--	----	----	**No**	----	----
Organic Fibre	----	-	--	----	----	**No**	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	**B.SCHRADER**	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	<0.0004	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	<0.001	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EA200N: Asbestos Quantification (non-NATA) - Continued									
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)		----	----	<0.01	----	----
ø Weight Used for % Calculation	----	0.0001	kg		----	----	**0.308**	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g		----	----	<0.0004	----	----
ED008: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		**0.2**	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g		**4.1**	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g		**0.2**	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g		**1.5**	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g		**6.0**	----	----	----	----
Exchangeable Sodium Percent	----	0.1	%		**25.3**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	**13**	**12**	**7**
Cadmium	7440-43-9	1	mg/kg		<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**16**	----	**11**	**15**	**10**
Copper	7440-50-8	5	mg/kg		**7**	----	**37**	**40**	**193**
Lead	7439-92-1	5	mg/kg		**16**	----	**104**	**70**	**15**
Nickel	7440-02-0	2	mg/kg		**6**	----	**6**	**12**	**11**
Zinc	7440-66-6	5	mg/kg		**33**	----	**256**	**225**	**79**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	----	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	----	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**86.5**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	**81.8**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	**86.7**	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_1.5-1.6	R-BH20B_1.0-2.0	A-BH16A_0.1-0.2	A-BH16A_0.5-0.6	A-BH16A_1.5-1.6
				Sampling date / time	30-Nov-2023 00:00	30-Nov-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2341790-017	ES2341790-019	ES2341790-022	ES2341790-023	ES2341790-024
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		----	----	----	**104**	**103**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	**105**	**107**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	**93.8**	**93.2**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	**108**	**111**
Anthracene-d10	1719-06-8	0.5	%		----	----	----	**110**	**110**
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	**110**	**110**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**94.4**	----	----	**87.0**	**89.7**
Toluene-D8	2037-26-5	0.2	%		**91.1**	----	----	**90.7**	**94.2**
4-Bromofluorobenzene	460-00-4	0.2	%		**106**	----	----	**99.0**	**101**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH16A_0.0-1.0	QC100_011223 Received as extra	QC200_011223 Received as extra	----	----
			Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2341790-028	ES2341790-032	ES2341790-033	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	4.2	10.0	----	----
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	<0.05	----	----	----	----
Plastic	----	0.05	%	<0.05	----	----	----	----
Bitumen	----	0.05	%	<0.05	----	----	----	----
Paint	----	0.05	%	<0.05	----	----	----	----
Paper and Cardboard	----	0.05	%	<0.05	----	----	----	----
Cloth	----	0.05	%	<0.05	----	----	----	----
Wood	----	0.05	%	<0.05	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	8	9	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	8	11	----	----
Copper	7440-50-8	5	mg/kg	----	48	37	----	----
Lead	7439-92-1	5	mg/kg	----	112	80	----	----
Nickel	7440-02-0	2	mg/kg	----	6	7	----	----
Zinc	7440-66-6	5	mg/kg	----	279	229	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH16A_0.0-1.0	QC100_011223 Received as extra	QC200_011223 Received as extra	----	----
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2341790-028	ES2341790-032	ES2341790-033	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH16A_0.0-1.0	QC100_011223 Received as extra	QC200_011223 Received as extra	----	----
				Sampling date / time	01-Dec-2023 00:00	01-Dec-2023 00:00	01-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2341790-028	ES2341790-032	ES2341790-033	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**99.7**	**103**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**102**	**105**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**90.3**	**95.0**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**106**	**108**	----	----
Anthracene-d10	1719-06-8	0.5	%		----	**109**	**112**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	**108**	**111**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**88.7**	**83.2**	----	----
Toluene-D8	2037-26-5	0.2	%		----	**95.7**	**91.7**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	**102**	**94.1**	----	----

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)			Sample ID	A-BH16A_0.0-1.0	----	----	----	----
			Sampling date / time	01-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2341790-034	--------	--------	--------	--------
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**----**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**Ch**	**----**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-	**N/A**	**----**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**4.77**	**----**	**----**	**----**	**----**
Synthetic Mineral Fibre	----	-	-	**No**	**----**	**----**	**----**	**----**
Organic Fibre	----	-	-	**No**	**----**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231130	QC300_20231201	----	----	----
				Sampling date / time	30-Nov-2023 00:00	01-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2341790-020	ES2341790-021	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		----	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		----	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L		----	<0.5	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L		----	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L		----	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L		----	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L		----	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		----	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		----	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		----	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		----	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L		----	<0.5	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		----	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L		----	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		----	<0.5	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L		----	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		----	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		----	<0.5	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		----	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		----	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		----	<2.0	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		----	<0.5	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		----	<0.5	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		----	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231130	QC300_20231201	----	----	----
				Sampling date / time	30-Nov-2023 00:00	01-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2341790-020	ES2341790-021	--------	--------	--------
					Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Demeton-S-methyl	919-86-8	0.5	µg/L		----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		----	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L		----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L		----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L		----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L		----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		----	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		----	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		----	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		----	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		----	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		----	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		----	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		----	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		----	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231130	QC300_20231201	----	----	----
				Sampling date / time	30-Nov-2023 00:00	01-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2341790-020	ES2341790-021	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		----	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		----	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		----	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		----	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		----	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		----	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		----	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		----	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		----	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		----	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		----	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		----	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		----	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		----	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		----	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		----	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		----	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		----	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231130	QC300_20231201	----	----	----
				Sampling date / time	30-Nov-2023 00:00	01-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2341790-020	ES2341790-021	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	A-BH13_0.0-0.2 - 01-Dec-2023 00:00	A soil sample.
EA200: Description	A-BH13_1.0-1.2 - 01-Dec-2023 00:00	A soil sample.
EA200: Description	A-BH14_0.0-0.1 - 01-Dec-2023 00:00	A soil sample.
EA200: Description	R-BH20B_0.1-0.2 - 30-Nov-2023 00:00	A soil sample.
EA200: Description	R-BH20B_0.5-0.6 - 30-Nov-2023 00:00	A soil sample.
EA200: Description	A-BH16A_0.1-0.2 - 01-Dec-2023 00:00	A soil sample.

Sub-Matrix: **SOLID**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	A-BH16A_0.0-1.0 - 01-Dec-2023 00:00	Several pieces of asbestos cement sheeting approximately 25x15x5mm.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material - Type III

(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

QUALITY CONTROL REPORT

Work Order	: **ES2341790**	Page	: 1 of 25
Amendment	: **6**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9645
Project	: 60709736 - CDRL 400	Date Samples Received	: 01-Dec-2023
Order number	: 60709736 - CDRL 400	Date Analysis Commenced	: 09-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: WYONG		
Quote number	: ME/624/21 - AMPOL		
No. of samples received	: 34		
No. of samples analysed	: 21		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
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John Williams	Lab Technician	Newcastle - Asbestos, Mayfield West, NSW
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Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5482361)									
ES2341790-002	A-BH13_1.0-1.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	14	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	23	18	22.2	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	13	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	21	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	23	24	5.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	76	2.9	0% - 50%
ES2342623-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	32	9.1	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5513448)									
ES2341790-023	A-BH16A_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	17	12.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	11	14.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	12	13	10.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	36	10.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	70	66	6.8	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5513448) - continued									
ES2341790-023	A-BH16A_0.5-0.6	EG005T: Zinc	7440-66-6	5	mg/kg	225	203	10.4	0% - 20%
ES2344316-014	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	34	25	30.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	12	10	25.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	20	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	84	# 142	51.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	274	307	11.1	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5580222)									
ES2341790-022	A-BH16A_0.1-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	14	25.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	7	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	13	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	37	27	30.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	104	94	10.1	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	256	259	1.1	0% - 20%
ES2403452-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	31	26	15.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	36	33	9.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	25	24	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	138	113	20.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5482363)									
ES2338756-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.7	6.7	0.0	0% - 20%
ES2338756-011	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.7	6.8	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5482371)									
ES2341790-009	A-BH14_1.0-1.2	EA055: Moisture Content	----	0.1 (1.0)*	%	12.1	11.3	6.8	0% - 50%
ES2342623-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	<1.0	<1.0	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5513452)									
ES2341790-032	QC100_011223 Received as extra	EA055: Moisture Content	----	0.1 (1.0)*	%	4.2	4.4	3.1	No Limit
ES2344441-007	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	18.9	17.8	5.6	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5580228)									
ES2402940-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	17.7	18.1	2.2	0% - 50%
ES2403452-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	13.7	12.6	8.7	0% - 50%
ED007: Exchangeable Cations (QC Lot: 5489515)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED007: Exchangeable Cations (QC Lot: 5489515) - continued									
ES2341790-003	A-BH13_2.0-2.2	ED007: Exchangeable Sodium Percent	----	0.1	%	17.1	17.0	0.0	0% - 20%
		ED007: Exchangeable Calcium	----	0.1	meq/100g	0.6	0.6	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	5.4	5.4	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.3	1.3	0.0	0% - 50%
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	7.7	7.7	0.0	0% - 20%
ED008: Exchangeable Cations (QC Lot: 5489514)									
ES2341790-017	R-BH20B_1.5-1.6	ED008: Exchangeable Sodium Percent	----	0.1	%	25.3	25.2	0.0	0% - 20%
		ED008: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.1	0.0	0% - 20%
		ED008: Exchangeable Magnesium	----	0.1	meq/100g	4.1	4.1	0.0	0% - 20%
		ED008: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	0% - 20%
		ED008: Exchangeable Sodium	----	0.1	meq/100g	1.5	1.5	0.0	0% - 20%
		ED008: Cation Exchange Capacity	----	0.1	meq/100g	6.0	6.0	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5482362)									
ES2341790-002	A-BH13_1.0-1.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2342623-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5513449)									
ES2341790-023	A-BH16A_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344316-014	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5580223)									
ES2341790-022	A-BH16A_0.1-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2403452-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5482357)									
ES2341790-002	A-BH13_1.0-1.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2342749-008	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5513260)									
ES2341790-023	A-BH16A_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5482356)									
ES2341790-002	A-BH13_1.0-1.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5482356) - continued									
ES2341790-002	A-BH13_1.0-1.2	EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2342749-008	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513259)									
ES2341790-023	A-BH16A_0.5-0.6	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513259) - continued									
ES2341790-023	A-BH16A_0.5-0.6	EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5482356)									
ES2341790-002	A-BH13_1.0-1.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2342749-008	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5482356) - continued									
ES2342749-008	Anonymous	EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5513259)									
ES2341790-023	A-BH16A_0.5-0.6	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5482355)									
ES2341790-002	A-BH13_1.0-1.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2342749-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513258)									
ES2341790-023	A-BH16A_0.5-0.6	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5482355)									
ES2341790-002	A-BH13_1.0-1.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2342749-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5482355) - continued									
ES2342749-008	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513258)									
ES2341790-023	A-BH16A_0.5-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5481247)									
ES2341966-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2342590-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5482354)									
ES2341790-002	A-BH13_1.0-1.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2342749-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513257)									
ES2341790-023	A-BH16A_0.5-0.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2344441-026	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5481247)									
ES2341966-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2342590-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5482354)									
ES2341790-002	A-BH13_1.0-1.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2342749-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513257)									
ES2341790-023	A-BH16A_0.5-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2344441-026	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5481247)									
ES2341966-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2342590-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5513266) - continued									
ES2344441-025	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2344441-026	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5490170)									
ES2342862-021	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5490170)									
ES2342862-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5490170)									
ES2342862-021	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5482361)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	106	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	113	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	123	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	108	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	119	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	108	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	98.5	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5513448)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	89.7	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	77.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	110	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	107	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	91.2	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	92.1	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	98.9	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5580222)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	107	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	76.0	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	126	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	100	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	107	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.3	66.0	133
EA002: pH 1:5 (Soils) (QCLot: 5482363)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	98.8	101
ED007: Exchangeable Cations (QCLot: 5489515)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	94.0	75.8	120
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	95.2	74.9	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	106	80.0	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED007: Exchangeable Cations (QCLot: 5489515) - continued								
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	101	80.0	120
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED008: Exchangeable Cations (QCLot: 5489514)								
ED008: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	97.0	82.0	128
ED008: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	98.2	82.0	120
ED008: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	104	70.0	140
ED008: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	101	78.0	136
ED008: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED008: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5482362)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	117	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5513449)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	89.1	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5580223)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	107	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5482357)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	112	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513260)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	80.7	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5482356)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	67.0	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5482356) - continued								
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	86.9	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.4	54.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.0	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5482356)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.5	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	91.4	54.0	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5482356) - continued								
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	85.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	101	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	85.1	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	68.0	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259) - continued								
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.9	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5482355)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	91.8	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	98.5	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	89.4	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	88.8	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	82.4	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	90.0	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	98.2	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	98.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	88.1	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	95.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	32.2	10.0	80.0
EP075(SIM)A: Phenolic Compounds (QCLot: 5513258)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	115	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	118	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	108	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	108	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	112	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	115	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	113	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	115	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	103	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	99.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	58.4	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5482355)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.8	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	105	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	95.5	75.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5482355) - continued								
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	91.5	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.2	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	91.8	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	97.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.5	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	85.4	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	94.3	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513258)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	113	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	111	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	109	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	114	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	116	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	116	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	119	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	108	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	123	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	109	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	103	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	105	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5481247)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	108	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5482354)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	102	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5482354) - continued								
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.6	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513257)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	112	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.0	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	96.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513266)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.7	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5481247)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	102	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5482354)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	106	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	104	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	105	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513257)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	113	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	97.7	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	94.4	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513266)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.7	72.4	133
EP080: BTEXN (QCLot: 5481247)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	97.0	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	105	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	108	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	91.6	78.8	122
EP080: BTEXN (QCLot: 5513266)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.6	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.6	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.7	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.9	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5555944)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	88.5	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	81.4	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	87.4	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	84.1	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	92.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	99.5	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	104	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	88.1	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	85.8	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	91.0	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	82.9	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	86.2	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	85.6	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	95.7	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	89.0	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	86.6	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	88.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	93.3	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	93.9	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	97.6	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	95.0	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5555944)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	88.1	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	96.0	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.2	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	84.8	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	88.6	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	86.1	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	82.7	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	84.7	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	84.5	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	88.1	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	84.6	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	84.6	69.0	121

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5555944) - continued								
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	89.6	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	86.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	93.6	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	87.7	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	85.6	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	95.2	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	92.9	51.6	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5490170)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	91.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5490170)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.6	75.0	127
EP080: BTEXN (QCLot: 5490170)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	107	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	107	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5482361)							
ES2341790-002	A-BH13_1.0-1.2	EG005T: Arsenic	7440-38-2	50 mg/kg	92.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	107	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	82.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	89.0	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5513448)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5513448) - continued							
ES2341790-023	A-BH16A_0.5-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	83.7	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	91.1	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	86.5	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	86.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	78.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	90.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	66.5	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5580222)							
ES2341790-022	A-BH16A_0.1-0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	97.1	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	104	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.3	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	83.3	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5482362)							
ES2341790-002	A-BH13_1.0-1.2	EG035T: Mercury	7439-97-6	5 mg/kg	98.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5513449)							
ES2341790-023	A-BH16A_0.5-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	94.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5580223)							
ES2341790-022	A-BH16A_0.1-0.2	EG035T: Mercury	7439-97-6	5 mg/kg	96.6	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5482357)							
ES2341790-002	A-BH13_1.0-1.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513260)							
ES2341790-023	A-BH16A_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.9	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5482356)							
ES2341790-002	A-BH13_1.0-1.2	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	105	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	118	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	87.2	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	118	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	101	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	108	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259)							
ES2341790-023	A-BH16A_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	94.7	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	99.8	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.4	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259) - continued							
ES2341790-023	A-BH16A_0.5-0.6	EP068: Dieldrin	60-57-1	0.5 mg/kg	97.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	89.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5482356)							
ES2341790-002	A-BH13_1.0-1.2	EP068: Diazinon	333-41-5	0.5 mg/kg	103	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	114	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	102	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	93.3	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259)							
ES2341790-023	A-BH16A_0.5-0.6	EP068: Diazinon	333-41-5	0.5 mg/kg	81.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	97.6	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	94.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5482355)							
ES2341790-002	A-BH13_1.0-1.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	92.8	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.9	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.6	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	101	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	71.1	20.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513258)							
ES2341790-023	A-BH16A_0.5-0.6	EP075(SIM): Phenol	108-95-2	10 mg/kg	127	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	126	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	116	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	115	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	105	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5482355)							
ES2341790-002	A-BH13_1.0-1.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.7	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513258)							
ES2341790-023	A-BH16A_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	125	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	126	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5481247)							
ES2341966-004	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.8	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5482354)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5482354) - continued							
ES2341790-002	A-BH13_1.0-1.2	EP071: C10 - C14 Fraction	----	480 mg/kg	109	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	110	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	124	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513257)							
ES2341790-023	A-BH16A_0.5-0.6	EP071: C10 - C14 Fraction	----	480 mg/kg	106	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	121	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	128	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	86.4	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5481247)							
ES2341966-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.3	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5482354)							
ES2341790-002	A-BH13_1.0-1.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	108	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	122	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513257)							
ES2341790-023	A-BH16A_0.5-0.6	EP071: >C10 - C16 Fraction	----	860 mg/kg	115	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	128	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	122	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.3	61.1	142
EP080: BTEXN (QCLot: 5481247)							
ES2341966-004	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.0	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	78.9	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.7	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	85.6	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.5	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	87.1	61.1	115
EP080: BTEXN (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	89.8	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	80.1	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.3	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.3	70.7	121

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 5513266) - continued							
ES2344441-025	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	87.6	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5490170)							
ES2342862-021	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	103	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5490170)							
ES2342862-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	100	70.0	130
EP080: BTEXN (QCLot: 5490170)							
ES2342862-021	Anonymous	EP080: Benzene	71-43-2	25 µg/L	122	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	117	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	113	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2341790**	Page	: 1 of 13
Amendment	: **6**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +6138549 9645
Project	: 60709736 - CDRL 400	Date Samples Received	: 01-Dec-2023
Site	: WYONG	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 34
Order number	: 60709736 - CDRL 400	No. of samples analysed	: 21

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2344316--014	Anonymous	**Lead**	7439-92-1	51.4 %	0% - 20%	**RPD exceeds LOR based limits**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
A-BH13_2.0-2.2,	A-BH14_2.0-2.2	12-Dec-2023	08-Dec-2023	**4**	----	----	----
Soil Glass Jar - Unpreserved							
R-BH20B_1.5-1.6		12-Dec-2023	07-Dec-2023	**5**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved							
A-BH16A_0.1-0.2		----	----	----	05-Feb-2024	15-Dec-2023	**52**
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6,	A-BH16A_1.5-1.6,	----	----	----	22-Dec-2023	15-Dec-2023	**7**
QC100_011223 - Received as extra,	QC200_011223 - Received as extra						
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved							
A-BH16A_0.1-0.2		06-Feb-2024	29-Dec-2023	**39**	06-Feb-2024	29-Dec-2023	**39**
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6		22-Dec-2023	15-Dec-2023	**7**	----	----	----
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6		22-Dec-2023	15-Dec-2023	**7**	----	----	----
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6		22-Dec-2023	15-Dec-2023	**7**	----	----	----
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6		22-Dec-2023	15-Dec-2023	**7**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
A-BH16A_0.5-0.6,	A-BH16A_1.5-1.6,	22-Dec-2023	15-Dec-2023	**7**	----	----	----
QC100_011223 - Received as extra,	QC200_011223 - Received as extra						
EP080/071: Total Petroleum Hydrocarbons							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	22-Dec-2023	15-Dec-2023	**7**	----	----	----
Soil Glass Jar - Unpreserved A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	22-Dec-2023	15-Dec-2023	**7**	29-Dec-2023	15-Dec-2023	**14**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	22-Dec-2023	15-Dec-2023	**7**	----	----	----
Soil Glass Jar - Unpreserved A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	22-Dec-2023	15-Dec-2023	**7**	29-Dec-2023	15-Dec-2023	**14**
EP080: BTEXN						
Soil Glass Jar - Unpreserved A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	22-Dec-2023	15-Dec-2023	**7**	29-Dec-2023	15-Dec-2023	**14**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP068A: Organochlorine Pesticides (OC)						
Amber Glass Bottle - Unpreserved QC300_20231201	23-Jan-2024	08-Dec-2023	**46**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Amber Glass Bottle - Unpreserved QC300_20231201	23-Jan-2024	08-Dec-2023	**46**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved QC300_20231201	14-Dec-2023	08-Dec-2023	**6**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved QC300_20231201	14-Dec-2023	08-Dec-2023	**6**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued						
Pesticides by GCMS	EP068	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Pesticides by GCMS	EP068	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
A-BH13_2.0-2.2,	A-BH14_2.0-2.2	**01-Dec-2023**	**12-Dec-2023**	08-Dec-2023	×	**12-Dec-2023**	12-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA002)								
R-BH20B_1.5-1.6		**30-Nov-2023**	**12-Dec-2023**	07-Dec-2023	×	**12-Dec-2023**	12-Dec-2023	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055)								
A-BH13_2.0-2.2,	A-BH14_2.0-2.2	**01-Dec-2023**	**----**	----	----	**11-Dec-2023**	15-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055)								
R-BH20B_1.5-1.6		**30-Nov-2023**	**----**	----	----	**11-Dec-2023**	14-Dec-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
A-BH13_1.0-1.2,	A-BH14_1.0-1.2	**01-Dec-2023**	**----**	----	----	**11-Dec-2023**	15-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055)								
A-BH16A_0.1-0.2		**01-Dec-2023**	**----**	----	----	**05-Feb-2024**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EA055)								
A-BH16A_0.5-0.6, QC100_011223 - Received as extra,	A-BH16A_1.5-1.6, QC200_011223 - Received as extra	**01-Dec-2023**	**----**	----	----	**22-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EA055)								
R-BH20B_0.5-0.6		**30-Nov-2023**	**----**	----	----	**11-Dec-2023**	14-Dec-2023	✓
EA155: Foreign Material - Type III								
Snap Lock Bag (EA155)								
A-BH16A_0.0-1.0		**01-Dec-2023**	**----**	----	----	**06-Feb-2024**	29-May-2024	✓
Snap Lock Bag (EA155)								
A-BH13_1.0-2.0,	A-BH14_1.0-2.0	**01-Dec-2023**	**----**	----	----	**13-Dec-2023**	29-May-2024	✓
Snap Lock Bag (EA155)								
R-BH20B_1.0-2.0		**30-Nov-2023**	**----**	----	----	**13-Dec-2023**	28-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-BH13_0.0-0.2, A-BH13_1.0-1.2, A-BH14_0.0-0.1	**01-Dec-2023**	**----**	----	----	**12-Dec-2023**	29-May-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-BH16A_0.1-0.2	**01-Dec-2023**	**----**	----	----	**27-Dec-2023**	29-May-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH20B_0.1-0.2, R-BH20B_0.5-0.6	**30-Nov-2023**	**----**	----	----	**12-Dec-2023**	28-May-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N) A-BH13_0.0-0.2, A-BH13_1.0-1.2, A-BH14_0.0-0.1	**01-Dec-2023**	**----**	----	----	**12-Dec-2023**	29-May-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N) A-BH16A_0.1-0.2	**01-Dec-2023**	**----**	----	----	**27-Dec-2023**	29-May-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N) R-BH20B_0.1-0.2, R-BH20B_0.5-0.6	**30-Nov-2023**	**----**	----	----	**12-Dec-2023**	28-May-2024	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007) A-BH13_2.0-2.2, A-BH14_2.0-2.2	**01-Dec-2023**	**13-Dec-2023**	29-Dec-2023	✓	**13-Dec-2023**	29-Dec-2023	✓
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008) R-BH20B_1.5-1.6	**30-Nov-2023**	**13-Dec-2023**	28-Dec-2023	✓	**13-Dec-2023**	28-Dec-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) A-BH16A_0.1-0.2	**01-Dec-2023**	**06-Feb-2024**	29-May-2024	✓	**06-Feb-2024**	29-May-2024	✓
Soil Glass Jar - Unpreserved (EG005T) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**11-Dec-2023**	29-May-2024	✓	**12-Dec-2023**	29-May-2024	✓
Soil Glass Jar - Unpreserved (EG005T) A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	**01-Dec-2023**	**23-Dec-2023**	29-May-2024	✓	**24-Dec-2023**	29-May-2024	✓
Soil Glass Jar - Unpreserved (EG005T) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**11-Dec-2023**	28-May-2024	✓	**12-Dec-2023**	28-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) A-BH16A_0.1-0.2	**01-Dec-2023**	**06-Feb-2024**	29-Dec-2023	×	**06-Feb-2024**	29-Dec-2023	×
Soil Glass Jar - Unpreserved (EG035T) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**11-Dec-2023**	29-Dec-2023	✓	**13-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T) A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	**01-Dec-2023**	**23-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**11-Dec-2023**	28-Dec-2023	✓	**13-Dec-2023**	28-Dec-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) A-BH13_1.0-1.2, A-BH14_1.0-1.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP066) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP066) R-BH20B_0.5-0.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**13-Dec-2023**	21-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) A-BH13_1.0-1.2, A-BH14_1.0-1.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) R-BH20B_0.5-0.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) A-BH13_1.0-1.2, A-BH14_1.0-1.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) R-BH20B_0.5-0.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH13_1.0-1.2, A-BH14_1.0-1.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH20B_0.5-0.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH13_1.0-1.2, A-BH14_1.0-1.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH20B_0.5-0.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**09-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	15-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) A-BH16A_1.5-1.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH16A_1.5-1.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) QC100_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) QC100_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**09-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	14-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**09-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	15-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**12-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH16A_0.5-0.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) A-BH16A_1.5-1.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH16A_1.5-1.6	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) QC100_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) QC100_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**09-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	14-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**12-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	21-Jan-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) A-BH13_1.0-1.2, A-BH13_2.0-2.2, A-BH14_1.0-1.2, A-BH14_2.0-2.2	**01-Dec-2023**	**09-Dec-2023**	15-Dec-2023	✓	**12-Dec-2023**	15-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH16A_0.5-0.6, A-BH16A_1.5-1.6, QC100_011223 - Received as extra, QC200_011223 - Received as extra	**01-Dec-2023**	**22-Dec-2023**	15-Dec-2023	×	**29-Dec-2023**	15-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) R-BH20B_0.5-0.6, R-BH20B_1.5-1.6	**30-Nov-2023**	**09-Dec-2023**	14-Dec-2023	✓	**12-Dec-2023**	14-Dec-2023	✓

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-BH16A_0.0-1.0	**01-Dec-2023**	**----**	----	**----**	**12-Feb-2024**	29-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20231201	**01-Dec-2023**	**23-Jan-2024**	08-Dec-2023	×	**24-Jan-2024**	03-Mar-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20231201	**01-Dec-2023**	**23-Jan-2024**	08-Dec-2023	×	**24-Jan-2024**	03-Mar-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231201	**01-Dec-2023**	**14-Dec-2023**	08-Dec-2023	×	**14-Dec-2023**	23-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231201	**01-Dec-2023**	**14-Dec-2023**	08-Dec-2023	×	**14-Dec-2023**	23-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231201	**01-Dec-2023**	**13-Dec-2023**	15-Dec-2023	✓	**13-Dec-2023**	15-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231130	**30-Nov-2023**	**13-Dec-2023**	14-Dec-2023	✓	**13-Dec-2023**	14-Dec-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231201	**01-Dec-2023**	**13-Dec-2023**	15-Dec-2023	✓	**13-Dec-2023**	15-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231130	**30-Nov-2023**	**13-Dec-2023**	14-Dec-2023	✓	**13-Dec-2023**	14-Dec-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231201	**01-Dec-2023**	**13-Dec-2023**	15-Dec-2023	✓	**13-Dec-2023**	15-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231130	**30-Nov-2023**	**13-Dec-2023**	14-Dec-2023	✓	**13-Dec-2023**	14-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	6	58	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	3	19	**15.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	6	54	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	6	53	**11.32**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	3	26	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	54	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	53	**5.66**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations with pre-treatment	ED008	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	54	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	53	**5.66**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	20	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	3	54	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	53	5.66	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	32	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Pesticides by GCMS	EP068	0	3	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	0	3	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Foreign Material Content	EA155	SOIL	In house: Referenced to RTA T276. Foreign Material Content
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2341790**		
Amendment	: **6**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9645
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 4
Order number	: 60709736 - CDRL 400	Quote number	: EM2021AECOMAU0015 (ME/624/21 - AMPOL)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WYONG		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 01-Dec-2023 15:50	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 16-Feb-2024	Scheduled Reporting Date	: **16-Feb-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 9.7'C, 9.0'C, 7.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 33 / 21
		No. of samples NOT collected	1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the addition of FMT analysis to sample 29.
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **FMT bags for samples #003, 010, 014, 017 not received. Clay Content analysis can't be conducted for samples #003, 010 & 017.**
- **Sample #20 'QC300_20231130' & #21 'QC300_20231201' are unable to be analysed due to all sample containers missing.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Sample A-BH14_2.0-3.0 was not received due to the following reason: Not received
- **Asbestos, FMT, PSD analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2341790-032 : [01-Dec-2023] : QC100_011223 - Received as extra
ES2341790-033 : [01-Dec-2023] : QC200_011223 - Received as extra

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) - Default	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2341790-001	01-Dec-2023 00:00	A-BH13_0.0-0.2				✓			
ES2341790-002	01-Dec-2023 00:00	A-BH13_1.0-1.2			✓	✓			✓
ES2341790-003	01-Dec-2023 00:00	A-BH13_2.0-2.2		✓	✓		✓	✓	
ES2341790-004	01-Dec-2023 00:00	A-BH13_3.0-3.2	✓						
ES2341790-005	01-Dec-2023 00:00	A-BH13_0.0-1.0	✓						
ES2341790-007	01-Dec-2023 00:00	A-BH13_2.0-3.0	✓						
ES2341790-008	01-Dec-2023 00:00	A-BH14_0.0-0.1				✓			
ES2341790-009	01-Dec-2023 00:00	A-BH14_1.0-1.2			✓				✓
ES2341790-010	01-Dec-2023 00:00	A-BH14_2.0-2.2		✓	✓		✓	✓	
ES2341790-011	01-Dec-2023 00:00	A-BH14_3.0-3.2	✓						
ES2341790-012	01-Dec-2023 00:00	A-BH14_0.0-1.0	✓						
ES2341790-015	30-Nov-2023 00:00	R-BH20B_0.1-0.2				✓			
ES2341790-016	30-Nov-2023 00:00	R-BH20B_0.5-0.6			✓	✓			✓
ES2341790-017	30-Nov-2023 00:00	R-BH20B_1.5-1.6		✓	✓			✓	
ES2341790-018	30-Nov-2023 00:00	R-BH20B_0.1-1.0	✓						
ES2341790-022	01-Dec-2023 00:00	A-BH16A_0.1-0.2			✓	✓			
ES2341790-023	01-Dec-2023 00:00	A-BH16A_0.5-0.6			✓				✓
ES2341790-024	01-Dec-2023 00:00	A-BH16A_1.5-1.6			✓				
ES2341790-025	01-Dec-2023 00:00	A-BH16A_2.2-2.5	✓						
ES2341790-026	01-Dec-2023 00:00	A-BH14_2.2-2.4	✓						
ES2341790-027	01-Dec-2023 00:00	A-BH14_3.0-4.0	✓						
ES2341790-030	01-Dec-2023 00:00	A-BH16A_1.0-2.0	✓						
ES2341790-031	01-Dec-2023 00:00	A-BH16A_2.0-2.8	✓						
ES2341790-032	01-Dec-2023 00:00	QC100_011223 Receiv...			✓				
ES2341790-033	01-Dec-2023 00:00	QC200_011223 Receiv...			✓				

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA155-ENM NSW DECC Excavated Natural Materials	SOIL - ED008 Def Exchangeable Cations with pre-treatment -	SOIL - IN4S pH plus EC (1:5)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2341790-006	01-Dec-2023 00:00	A-BH13_1.0-2.0	✓				
ES2341790-013	01-Dec-2023 00:00	A-BH14_1.0-2.0	✓				
ES2341790-017	30-Nov-2023 00:00	R-BH20B_1.5-1.6		✓			
ES2341790-019	30-Nov-2023 00:00	R-BH20B_1.0-2.0	✓				
ES2341790-022	01-Dec-2023 00:00	A-BH16A_0.1-0.2				✓	
ES2341790-024	01-Dec-2023 00:00	A-BH16A_1.5-1.6					✓
ES2341790-028	01-Dec-2023 00:00	A-BH16A_0.0-1.0	✓				
ES2341790-029	01-Dec-2023 00:00	A-BH16A_0.1-1.0	✓		✓		
ES2341790-032	01-Dec-2023 00:00	QC100_011223 Receiv...					✓
ES2341790-033	01-Dec-2023 00:00	QC200_011223 Receiv...					✓

Matrix: **SOLID**

Laboratory sample ID	Sampling date / time	Sample ID	SOLID - EA200B Asbestos Identification in Bulk Solids (Excluding
ES2341790-034	01-Dec-2023 00:00	A-BH16A_0.0-1.0	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-05 TRH/BTEXN/8 Metals	WATER - W-19 TRH/BTEXN/PAH/Phenols/OC/OP/PCB/8 metals
ES2341790-020	30-Nov-2023 00:00	QC300_20231130	✓	
ES2341790-021	01-Dec-2023 00:00	QC300_20231201		✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA002: pH (1:5)							
R-BH20B_1.5-1.6	Soil Glass Jar - Unpreserved	07-Dec-2023	12-Dec-2023	01-Dec-2023	✓	08-Dec-2023	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)
(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils
(SOIL) EA155: Foreign Material - Type III
(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

SAMPLES RECEIVED WITHOUT COC

Environmental Division
Sydney
Work Order Reference
ES2341790

Telephone : +61-2-8784 8555

CLIENT: AECOM	CARRIER: Client
PROJECT / QUOTE: 60709736	CONNOTE #:
CONTACT NAME:	AWB #:
CONTACT NUMBER:	# OF ESKIES: 3 + FMT bags SECURITY SEAL: Y N N/A
SAMPLER NAME:	TYPE OF ESKIES:
SAMPLER NUMBER:	ESKY NUMBERS:
SAMPLES RECEIVED BY: TRW	# OF SAMPLES:
DATE/TIME RECEIVED: 1/12/23 1550 CLIENT SERVICES NOTIFIED BY:	TEMPERATURE:

LAB ID	SAMPLE DETAILS: SAMPLE ID	DATE	MATRIX	NUMBER OF CONTAINERS	ADDITIONAL INFORMATION / COMMENTS:
1	R-BH20_0.1-0.2_231201	1/12/23	S		OTHER INFORMATION: ☐ MICRO ☐ BIOSECURITY ☐ BROKEN CONTAINERS ☐ COC EMAILED ☐ ALS COMPASS
2					
3					
4					
5					
			TOTAL		

CORRESPONDENCE (DATE, INITIALS - DETAILS OF CORRESPONDENCE):

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 Days TAT	QUOTE NO.: ME/624/21	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Foreign Material (EMM Guideline)	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	HOLD
1	A-BH13_0.0-0.2	S	1/12/23	-	J, ZLB	2,1		X					
2	A-BH13_1.0-1.20	S	1/12/23	-	J, ZLB	2,1		X		X	X		
3	A-BH13_2.0-2.2	S	1/12/23	-	J, ZLB	2,1			X			X	
4	A-BH13_3.0-3.2	S	1/12/23	-	J, ZLB	2,1							
5	A-BH13_0.0-1.0	S	1/12/23	-	BB	1							
6	A-BH13_1.0-2.0	S	1/12/23	-	BB	1	X						
7	A-BH13_2.0-3.0	S	1/12/23	-	BB	1							
8	A-BH14_0.0-0.1	S	1/12/23	-	J, ZLB	2,1		X					
9	A-BH14_1.0-1.2	S	1/12/23	-	J, ZLB	2,1				X	X		
10	A-BH14_2.0-2.2	S	1/12/23	-	J, ZLB	2,1			X			X	
11	A-BH14_3.0-3.2	S	1/12/23	-	J, ZLB	2,1							
12	A-BH14_0.0-1.0	S	1/12/23	-	BB	1							
13	A-BH14_1.0-2.0	S	1/12/23	-	BB	1	X						
14	A-BH14_2.0-3.0	S	1/12/23	-	BB	1							
15	R-BH20B_0.1-0.3	S	30/11/23	-	J, ZLB	2,1		X					
16	R-BH20B_0.5-0.6	S	30/11/23	-	J, ZLB	2,1		X		X	X		
17	R-BH20B_1.5-1.6	S	30/11/23	-	J, ZLB	2,1			X			X	
18	R-BH20B_0.1-1.0	S	30/11/23	-	BB	1							
19	R-BH20B_1.0-2.0	S	30/11/23	-	BB	1	X						
20	QC300_20231130	W	30/11/23		AG , P , V	1,1,2				X			
21	QC300_20231201	W	1/12/23		AG , P , V	1,1,2				X			

Environmental Division
Sydney
Work Order Reference
ES2341790

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	8/12/2023	Name:	Date:	Name: Lucas	Date: 8/12/23	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: ALS	Time: 1650	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic;
V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 Days TAT	QUOTE NO.: ME/624/21	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION: Type / Code	Total bottles	Foreign Material (RMM Guideline)	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	HOLD	Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	A-BH13_0.0-0.2	S	1/12/23	-	J, ZLB	2,1		X						
2	A-BH13_1.0-1.20	S	1/12/23	-	J, ZLB	2,1		X		X	X			
3	A-BH13_2.0-2.2	S	1/12/23	-	J, ZLB	2,1			X			X		
4	A-BH13_3.0-3.2	S	1/12/23	-	J, ZLB	2,1								
5	A-BH13_0.0-1.0	S	1/12/23	-	BB	1								
6	A-BH13_1.0-2.0	S	1/12/23	-	BB	1	X							
7	A-BH13_2.0-3.0	S	1/12/23	-	BB	1								
8	A-BH14_0.0-0.1	S	1/12/23	-	J, ZLB	2,1		X						
9	A-BH14_1.0-1.2	S	1/12/23	-	J, ZLB	2,1				X	X			
10	A-BH14_2.0-2.2	S	1/12/23	-	J, ZLB	2,1			X			X		
11	A-BH14_3.0-3.2	S	1/12/23	-	J, ZLB	2,1								
12	A-BH14_0.0-1.0	S	1/12/23	-	BB	1								
13	A-BH14_1.0-2.0	S	1/12/23	-	BB	1	X							
14	A-BH14_2.0-3.0	S	1/12/23	-	BB	1								
15	R-BH20B_0.1-0.2	S	30/11/23	-	J, ZLB	2,1		X						
16	R-BH20B_0.5-0.6	S	30/11/23	-	J, ZLB	2,1		X		X	X			
17	R-BH20B_1.5-1.6	S	30/11/23	-	J, ZLB	2,1			X			X		
18	R-BH20B_0.1-1.0	S	30/11/23	-	BB	1								
19	R-BH20B_1.0-2.0	S	30/11/23	-	BB	1	X							
20	QC300_20231130	W	30/11/23		AG, P, V	1,1,2				X				
21	QC300_20231201	W	1/12/23		AG, P, V	1,1,2				X				

TAT

Environmental Division
Sydney
Work Order Reference
ES2341790

Telephone : + 61-2-8784 8555

Subcon / Forward Lab / Split WO: Newcastle
Lab / Analysis: Asbestos + FMT
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2341790
Attached By PO / Internal Sheet:

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	8/12/2023	Name:	Date:	Name: Lucas	Date: 8/12/23	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: 2LS	Time: 1650	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; S = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

30-11-01-32 (2)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1, June 15, 2016

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

04AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jontz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE:
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.biedeman@aecom.com	
RESULTS REQUIRED (Date): 3 Days TAT	QUOTE NO:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (Circle Appropriate): Intact: Yes No N/A
SAMPLE TEMPERATURE:
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

| ALS ID | SAMPLE ID | MATRIX | DATE | Time | CONTAINER INFORMATION: Type / Code | Tot/Analytes | Foreign Material (ENM Guideline), Electrical Conductivity, and pH | Asbestos Quantification (as per NEPM) | pH, Cation Exchange Capacity and Clay % | TRH, BTEXN, PAH, and Metals | Phenols, OC, OP, PCB | TRH, BTEXN, Metals | | |

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 Days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	OC, OP, PCB	TRH, BTEXN, Metals	Phenols	C6-C9 / BTEXN					HOLD	Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
	SAMPLE INFORMATION (note: S = Soil, W = Water)				CONTAINER INFORMATION															
	ACM-BH09_0.6-0.7	S	6/12/23	-	J, ZLB	2,1		X		X	X									labelled as ACM-BH05 on the jar
	ACM-BH09_1.0-1.1	S	6/12/23	-	J, ZLB	2,1														labelled as ACM-BH05 on the jar
	ACM-BH09_1.2-1.3	S	6/12/23	-	J, ZLB	2,1														labelled as ACM-BH05 on the jar
	ACM-BH09_1.5-1.6	S	6/12/23	-	J, ZLB	2,1						X	X							labelled as ACM-BH05 on the jar
	QC300_20231206	W	6/12/23	-	AG, P, V	1,1,2				X	X									
	ACM-BH09_2.0-2.1	S	7/12/23	-	J, ZLB	2,1														
	ACM-BH09_2.9-3.0	S	7/12/23	-	J, ZLB	2,1														
	QC300_20231207	W	7/12/23	-	AG, P, V	1,1,2														
	Trip Blank / Trip Spike	S	lab prepared		J	1,1								X						
32	QC100_20231206	S	6/12/23	-	J	1				X										
33	QC200_20231206	S	6/12/23	-	J	1				X										

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	15/12/2023	Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time: AM	Of:	Time:	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar *Soil Container Codes:* Jar = Unpreserved glass jar

Loren Schiavon

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Monday, 22 January 2024 4:11 PM
To: ALSEnviro Sydney; Loren Schiavon
Cc: Tiedeman, Mark; Randall, Stephen; McGrath, Kate
Subject: [EXTERNAL] - RE: RESULTS & EDD for ALS Workorder : ES2341790 | Your Reference: 60709736 - CDRL 400

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please analyse;

- QC300_20231130 for TRH/BTEXN/8 Metals, and
- QC300_20231101 for TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals.

Please proceed with the analysis on standard TAT.

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM
Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

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From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, January 2, 2024 2:24 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: RESULTS & EDD for ALS Workorder : ES2341790 | Your Reference: 60709736 - CDRL 400

Deliverables for ALS Workorder ES2341790

Project: 60709736 - CDRL 400

Dear Eric Serttas,

Please find enclosed the following deliverables for **ES2341790**:

- 60709736 - CDRL 400.ESDAT_ES2341790_1.Chemistry2e.CSV
- 60709736 - CDRL 400.ESDAT_ES2341790_1.Header.XML
- 60709736 - CDRL 400.ESDAT_ES2341790_1.Sample2e.CSV
- ES2341790_1_COA.pdf
- ES2341790_1_QC.pdf
- ES2341790_1_QCI.pdf
- ES2341790b.60709736 - CDRL 400.AECOM.zip
- ES2341790_COC.pdf
- ES2341790_COC_1.pdf
- ES2341790_COC_2.pdf
- ES2341790_COC_3.pdf

Report Recipients

- Eric Serttas
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Chemistry2e.CSV
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Header.XML
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Sample2e.CSV
  - ES2341790_1_COA.pdf (Email)
  - ES2341790_1_QC.pdf (Email)
  - ES2341790_1_QCI.pdf (Email)
  - ES2341790b.60709736 - CDRL 400.AECOM.zip
  - ES2341790_COC.pdf (Email)
  - ES2341790_COC_1.pdf (Email)
  - ES2341790_COC_2.pdf (Email)
  - ES2341790_COC_3.pdf (Email)
- ACCOUNTS PAYABLE
  - ES2341790_COC.pdf (Email, Email)
  - ES2341790_COC_1.pdf (Email, Email)
  - ES2341790_COC_2.pdf (Email, Email)
  - ES2341790_COC_3.pdf (Email, Email)
- MARK TIEDEMAN
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Chemistry2e.CSV
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Header.XML
  - 60709736 - CDRL 400.ESDAT_ES2341790_1.Sample2e.CSV
  - ES2341790_1_COA.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2341790_1_QC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2341790_1_QCI.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2341790b.60709736 - CDRL 400.AECOM.zip
  - ES2341790_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2341790_COC_1.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)

- ES2341790_COC_2.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
- ES2341790_COC_3.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)

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SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2343534**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech		

Dates

Date Samples Received	: 08-Dec-2023 14:00	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 20-Dec-2023	Scheduled Reporting Date	: **19-Dec-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 7.0, 8.2, 9.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 20 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the addition of asbestos analysis for sample 1.
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **Asbestos bags have been compromised and contaminated as bags were not closed properly or had holes.**
- **Samples QC300_20231204, A-BH09_2.0-3.0, A-BH09_3.0_4.0 and QC300_20231207 were not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **The final report will be completed by the scheduled reporting date listed in this SRN. A Preliminary report will be available on 19/12/2023 with the exception of asbestos analysis**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2343534-016 : [06-Dec-2023] : QC300_20231206 - NULL
ES2343534-017 : [06-Dec-2023] : QC100_20231206 - NULL
ES2343534-018 : [06-Dec-2023] : QC200_20231206 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - NT-4S NO2 and NO3	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2343534-001	04-Dec-2023 00:00	R_BH34_0.1-0.2		✓	✓			✓	
ES2343534-002	04-Dec-2023 00:00	R_BH34_1.0-1.2		✓			✓		
ES2343534-003	04-Dec-2023 00:00	R_BH34_2.0-2.2		✓			✓		
ES2343534-004	04-Dec-2023 00:00	R_BH34_3.0-3.3	✓						
ES2343534-005	04-Dec-2023 00:00	R_BH34_4.3-4.5	✓						
ES2343534-006	05-Dec-2023 00:00	BH25_0.1-0.2		✓		✓			✓
ES2343534-007	05-Dec-2023 00:00	BH25_0.7-0.8		✓		✓			✓
ES2343534-008	05-Dec-2023 00:00	BH25_1.2-1.3		✓		✓			
ES2343534-009	05-Dec-2023 00:00	BH25_2.7-2.8	✓						
ES2343534-010	05-Dec-2023 00:00	A-BH09_0.1-0.2	✓						
ES2343534-011	05-Dec-2023 00:00	A-BH09_0.5-0.6		✓			✓		
ES2343534-012	06-Dec-2023 00:00	ACM-BH09_0.6-0.7	✓						
ES2343534-013	06-Dec-2023 00:00	ACM-BH09_1.0-1.1	✓						
ES2343534-014	06-Dec-2023 00:00	ACM-BH09_1.2-1.3	✓						
ES2343534-015	06-Dec-2023 00:00	ACM-BH09_1.5-1.6	✓						
ES2343534-017	06-Dec-2023 00:00	QC100_20231206 NULL	✓						
ES2343534-018	06-Dec-2023 00:00	QC200_20231206 NULL	✓						
ES2343534-019	07-Dec-2023 00:00	ACM-BH09_2.1-2.45	✓						
ES2343534-020	07-Dec-2023 00:00	ACM-BH09_2.9-3.0	✓						

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EK055 (solids) Ammonia as N	SOIL - S-05 TRH/BTEXN/8 Metals
ES2343534-006	05-Dec-2023 00:00	BH25_0.1-0.2	✓	
ES2343534-007	05-Dec-2023 00:00	BH25_0.7-0.8	✓	
ES2343534-008	05-Dec-2023 00:00	BH25_1.2-1.3	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2343534-016	06-Dec-2023 00:00	QC300_20231206 NULL	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EK057G: Nitrite as N - Soluble by Discrete Analyser							
BH25_0.1-0.2	Soil Glass Jar - Unpreserved	12-Dec-2023	20-Dec-2023	08-Dec-2023	✓	14-Dec-2023	×
BH25_0.7-0.8	Soil Glass Jar - Unpreserved	12-Dec-2023	20-Dec-2023	08-Dec-2023	✓	14-Dec-2023	×
BH25_1.2-1.3	Soil Glass Jar - Unpreserved	12-Dec-2023	20-Dec-2023	08-Dec-2023	✓	14-Dec-2023	×

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EP071: TRH - Semivolatile Fraction							
QC300_20231206	Amber Glass Bottle - Unpreserve	13-Dec-2023	24-Jan-2024	08-Dec-2023	✓	14-Dec-2023	×
EP075(SIM): PAH/Phenols (GC/MS - SIM)							
QC300_20231206	Amber Glass Bottle - Unpreserve	13-Dec-2023	24-Jan-2024	08-Dec-2023	✓	14-Dec-2023	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- Chromatogram (CHROM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CERTIFICATE OF ANALYSIS

Work Order	: **ES2343534**	Page	: 1 of 19
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023 14:00
Order number	: 60709736	Date Analysis Commenced	: 15-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:25
Sampler	: AECOM Geotech		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 20		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004, 016-019. All analysis results are as per the previous report.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination

- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
			Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.5	13.1	17.6	17.1	17.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----
Asbestos Type	1332-21-4	-	--	-	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	No	----	----	----	----
Sample weight (dry)	----	0.01	g	541	----	----	----	----
Synthetic Mineral Fibre	----	-	--	No	----	----	----	----
Organic Fibre	----	-	--	No	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	0.541	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	8	22	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	12	18	14	9
Copper	7440-50-8	5	mg/kg	17	20	10	53	14
Lead	7439-92-1	5	mg/kg	13	28	32	136	343
Nickel	7440-02-0	2	mg/kg	10	10	4	10	3
Zinc	7440-66-6	5	mg/kg	43	52	36	210	198
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
			Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
				Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	**0.1**	<0.1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	----	----	----	**30**	<20
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	----	----	----	**0.1**	**0.2**
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	----	----	**0.2**	**0.1**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	**0.3**	**0.3**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
				Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
			Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	<0.05	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	**0.5**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**0.9**	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.7**	<0.5	**0.8**	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
				Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	**1.9**	<0.5	**1.7**	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	**100**	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	**100**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		**100**	<100	<100	**160**	<100
>C34 - C40 Fraction	----	100	mg/kg		**120**	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**220**	<50	<50	**160**	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH34_0.1-0.2	R_BH34_1.0-1.2	R_BH34_2.0-2.2	BH25_0.1-0.2	BH25_0.7-0.8
				Sampling date / time	04-Dec-2023 00:00	04-Dec-2023 00:00	04-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343534-001	ES2343534-002	ES2343534-003	ES2343534-006	ES2343534-007
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	82.3	75.5	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	73.5	76.9	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	55.0	71.2	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		89.5	101	83.3	82.3	87.0
2-Chlorophenol-D4	93951-73-6	0.5	%		90.0	97.4	83.9	81.3	81.4
2.4.6-Tribromophenol	118-79-6	0.5	%		79.8	53.7	85.8	69.1	80.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		109	81.0	103	82.6	104
Anthracene-d10	1719-06-8	0.5	%		120	83.9	96.6	97.9	92.2
4-Terphenyl-d14	1718-51-0	0.5	%		122	94.2	104	93.9	108
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		94.4	90.4	83.4	68.2	82.4
Toluene-D8	2037-26-5	0.2	%		113	108	97.1	69.6	96.1
4-Bromofluorobenzene	460-00-4	0.2	%		120	117	107	86.6	107

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content									
Moisture Content	----	1.0	%		**15.9**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	**15.9**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**7**	**13**	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		**10**	**14**	----	----	----
Copper	7440-50-8	5	mg/kg		**11**	**29**	----	----	----
Lead	7439-92-1	5	mg/kg		**45**	**73**	----	----	----
Nickel	7440-02-0	2	mg/kg		**3**	**11**	----	----	----
Zinc	7440-66-6	5	mg/kg		**56**	**117**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	**0.1**	----	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		**20**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg		**1.0**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg		**0.3**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg		**1.3**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	**0.7**	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	**2.2**	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	**2.0**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	**0.7**	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	**0.8**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	**0.9**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	**0.5**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	**0.9**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	**0.5**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	**9.2**	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	**1.1**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	**1.4**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	**1.7**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	**140**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**140**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**72.1**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**61.8**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**75.6**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**82.1**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH25_1.2-1.3	A-BH09_0.5-0.6	----	----	----
				Sampling date / time	05-Dec-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-008	ES2343534-011	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		**----**	**80.1**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**----**	**61.2**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**----**	**79.6**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**----**	**89.8**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**----**	**90.0**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**89.3**	**83.4**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**102**	**94.9**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**105**	**101**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231206 NULL	----	----	----	----
				Sampling date / time	06-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-016	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231206 NULL	----	----	----	----
				Sampling date / time	06-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-016	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**24.2**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231206 NULL	----	----	----	----
				Sampling date / time	06-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343534-016	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**51.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**50.1**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**64.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**69.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**71.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**84.6**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**86.0**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**90.6**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R_BH34_0.1-0.2 - 04-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2343534**	Page	: 1 of 15
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 15-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 20		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5496139)									
ES2342971-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	19	19.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	44	52	16.0	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	22	18.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	10.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	60	74	20.7	0% - 50%
ES2343534-001	R_BH34_0.1-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	9	14.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	17	15	14.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	11	18.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	43	37	14.3	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5497923)									
ES2343534-002	R_BH34_1.0-1.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	7	45.4	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	8	23.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	8	52.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	24	18.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	28	48	52.8	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5497923) - continued									
ES2343534-002	R_BH34_1.0-1.2	EG005T: Zinc	7440-66-6	5	mg/kg	52	69	28.7	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5496143)									
ES2342971-015	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	30.7	30.2	1.4	0% - 20%
ES2343534-006	BH25_0.1-0.2	EA055: Moisture Content	----	0.1 (1.0)*	%	17.1	14.4	17.4	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5496140)									
ES2343433-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2343534-011	A-BH09_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5497919)									
ES2343475-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK055: Ammonia as N (QC Lot: 5499160)									
ES2343308-001	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	360	360	0.0	0% - 50%
ES2343569-003	Anonymous	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5496141)									
ES2343534-006	BH25_0.1-0.2	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	0.1	0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5496142)									
ES2343534-006	BH25_0.1-0.2	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.3	0.3	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5493523)									
ES2343534-002	R_BH34_1.0-1.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5493522)									
ES2343534-002	R_BH34_1.0-1.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5493522) - continued									
ES2343534-002	R_BH34_1.0-1.2	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5493522)									
ES2343534-002	R_BH34_1.0-1.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5493520)									
ES2343534-002	R_BH34_1.0-1.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5493520)									
ES2343534-002	R_BH34_1.0-1.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.7	0.8	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.8	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.9	2.1	10.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5493521)									
ES2343534-002	R_BH34_1.0-1.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5495485)									
ES2342971-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2343433-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5493521)									
ES2343534-002	R_BH34_1.0-1.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5495485)									
ES2342971-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2343433-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5495485)									
ES2342971-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5495485) - continued									
ES2342971-003	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2343433-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5494240)									
ES2343267-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	0.0	No Limit
WN2314743-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.009	0.010	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5494994)									
ES2342846-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2342916-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5494649)									
ES2342548-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2343066-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5494649)									
ES2342548-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5494649) - continued									
ES2343066-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	20	0.0	No Limit
EP080: BTEXN (QC Lot: 5494649)									
ES2342548-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2343066-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5496139)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.6	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	70.1	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	103	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	91.0	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	87.4	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	89.3	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	80.7	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5497923)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	96.1	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	125	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	113	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	95.9	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	101	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	98.6	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.1	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5496140)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	88.5	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5497919)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	89.6	70.0	125
EK055: Ammonia as N (QCLot: 5499160)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	312.5 mg/kg	101	84.0	104
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5496141)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	108	85.0	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5496142)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	103	88.0	118
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5493523)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	88.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5493522)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	65.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5493522) - continued								
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	103	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	106	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.0	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	78.7	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5493522)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	83.7	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	79.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	76.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	66.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5493522) - continued								
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	53.4	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5493520)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	99.7	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	104	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	97.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	88.8	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	89.7	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.0	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	97.8	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	82.0	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	96.7	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	87.6	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	45.4	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5493520)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	109	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	108	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	108	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.1	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	103	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	100	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	90.9	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	101	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	101	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	99.3	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	73.9	61.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5493520) - continued								
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	83.6	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	104	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5493521)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	94.8	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	99.1	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	100	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5495485)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	77.8	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5493521)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	100	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	95.3	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5495485)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.4	72.4	133
EP080: BTEXN (QCLot: 5495485)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.0	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5494240)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	106	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5494994)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5494994) - continued								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.9	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5493479)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.6	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.1	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	84.5	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	68.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	84.9	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	81.7	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	84.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	77.2	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	69.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	69.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	68.3	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	72.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	69.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	66.0	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	69.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	67.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5493480)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	78.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	84.8	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5494649)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5493480)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	63.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	70.5	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	84.1	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5494649)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.0	75.0	127
EP080: BTEXN (QCLot: 5494649)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5494649) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	103	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	104	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.6	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5496139)							
ES2342971-003	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	88.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	89.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	89.3	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	87.9	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	129	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	84.3	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5497923)							
ES2343534-002	R_BH34_1.0-1.2	EG005T: Arsenic	7440-38-2	50 mg/kg	71.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	85.1	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	90.3	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.0	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	83.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	95.0	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5496140)							
ES2343433-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	83.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5497919)							
ES2343475-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	75.6	70.0	130
EK055: Ammonia as N (QCLot: 5499160)							
ES2343308-001	Anonymous	EK055: Ammonia as N	7664-41-7	125 mg/kg	86.5	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5496141)							
ES2343534-006	BH25_0.1-0.2	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	89.1	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5496142)							
ES2343534-006	BH25_0.1-0.2	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	97.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5493523)							
ES2343534-002	R_BH34_1.0-1.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.2	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5493522)							
ES2343534-002	R_BH34_1.0-1.2	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	98.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	79.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	82.8	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	96.2	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	90.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	101	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5493522)							
ES2343534-002	R_BH34_1.0-1.2	EP068: Diazinon	333-41-5	0.5 mg/kg	77.6	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	82.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	75.7	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	114	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	83.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5493520)							
ES2343534-002	R_BH34_1.0-1.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	102	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	105	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	109	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.4	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	93.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5493520)							
ES2343534-002	R_BH34_1.0-1.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	114	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5493521)							
ES2343534-002	R_BH34_1.0-1.2	EP071: C10 - C14 Fraction	----	480 mg/kg	99.0	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	122	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	123	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5495485)							
ES2342971-003	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	103	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5493521)							
ES2343534-002	R_BH34_1.0-1.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	110	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	126	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	102	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5495485)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5495485) - continued							
ES2342971-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	61.1	142
EP080: BTEXN (QCLot: 5495485)							
ES2342971-003	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	90.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	96.3	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	96.5	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	100	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.8	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	101	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5494240)							
ES2343267-005	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	120	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	123	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	126	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	130	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	128	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	126	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	122	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5494994)							
ES2342896-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	91.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5494649)							
ES2342548-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5494649)							
ES2342548-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	97.7	70.0	130
EP080: BTEXN (QCLot: 5494649)							
ES2342548-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	104	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	108	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	107	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	83.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2343534**	Page	: 1 of 11
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech	No. of samples received	: 20
Order number	: 60709736	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EK057G: Nitrite as N by Discrete Analyser						
Soil Glass Jar - Unpreserved						
BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3	18-Dec-2023	12-Dec-2023	**6**	----	----	----

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20231206 - NULL	15-Dec-2023	13-Dec-2023	**2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20231206 - NULL	15-Dec-2023	13-Dec-2023	**2**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_20231206 - NULL	15-Dec-2023	13-Dec-2023	**2**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055)								
BH25_1.2-1.3		**05-Dec-2023**	**----**	----	**----**	**15-Dec-2023**	19-Dec-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
R_BH34_0.1-0.2,	R_BH34_2.0-2.2	**04-Dec-2023**	**----**	----	**----**	**15-Dec-2023**	18-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055)								
R_BH34_1.0-1.2		**04-Dec-2023**	**----**	----	**----**	**18-Dec-2023**	18-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055)								
BH25_0.1-0.2,	BH25_0.7-0.8,	**05-Dec-2023**	**----**	----	**----**	**15-Dec-2023**	19-Dec-2023	✓
A-BH09_0.5-0.6								
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
R_BH34_0.1-0.2		**04-Dec-2023**	**----**	----	**----**	**20-Dec-2023**	01-Jun-2024	✓
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
R_BH34_0.1-0.2		**04-Dec-2023**	**----**	----	**----**	**20-Dec-2023**	01-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
R_BH34_0.1-0.2,	R_BH34_2.0-2.2	**04-Dec-2023**	**15-Dec-2023**	01-Jun-2024	✓	**16-Dec-2023**	01-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
R_BH34_1.0-1.2		**04-Dec-2023**	**16-Dec-2023**	01-Jun-2024	✓	**16-Dec-2023**	01-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
BH25_0.1-0.2,	BH25_0.7-0.8,	**05-Dec-2023**	**15-Dec-2023**	02-Jun-2024	✓	**16-Dec-2023**	02-Jun-2024	✓
BH25_1.2-1.3,	A-BH09_0.5-0.6							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
R_BH34_0.1-0.2,	R_BH34_2.0-2.2	**04-Dec-2023**	**15-Dec-2023**	01-Jan-2024	✓	**18-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)								
R_BH34_1.0-1.2		**04-Dec-2023**	**16-Dec-2023**	01-Jan-2024	✓	**18-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)								
BH25_0.1-0.2,	BH25_0.7-0.8,	**05-Dec-2023**	**15-Dec-2023**	02-Jan-2024	✓	**18-Dec-2023**	02-Jan-2024	✓
BH25_1.2-1.3,	A-BH09_0.5-0.6							
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
BH25_0.1-0.2,	BH25_0.7-0.8,	**05-Dec-2023**	**----**	----	**----**	**18-Dec-2023**	02-Jan-2024	✓
BH25_1.2-1.3								
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G)								
BH25_0.1-0.2,	BH25_0.7-0.8,	**05-Dec-2023**	**18-Dec-2023**	12-Dec-2023	×	**18-Dec-2023**	20-Dec-2023	✓
BH25_1.2-1.3								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3	**05-Dec-2023**	**18-Dec-2023**	02-Jan-2024	✓	**18-Dec-2023**	20-Dec-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP066) A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068) A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH25_0.1-0.2, BH25_0.7-0.8, A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH25_0.1-0.2, BH25_0.7-0.8, A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**15-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	18-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3, A-BH09_0.5-0.6	**05-Dec-2023**	**15-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	19-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3, A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**15-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	18-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**18-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3, A-BH09_0.5-0.6	**05-Dec-2023**	**15-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	19-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3, A-BH09_0.5-0.6	**05-Dec-2023**	**18-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	27-Jan-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) R_BH34_0.1-0.2, R_BH34_1.0-1.2, R_BH34_2.0-2.2	**04-Dec-2023**	**15-Dec-2023**	18-Dec-2023	✓	**18-Dec-2023**	18-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH25_0.1-0.2, BH25_0.7-0.8, BH25_1.2-1.3, A-BH09_0.5-0.6	**05-Dec-2023**	**15-Dec-2023**	19-Dec-2023	✓	**18-Dec-2023**	19-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231206 - NULL	**06-Dec-2023**	**15-Dec-2023**	03-Jun-2024	✓	**15-Dec-2023**	03-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231206 - NULL	**06-Dec-2023**	**----**	----	----	**18-Dec-2023**	03-Jan-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20231206 - NULL	**06-Dec-2023**	**15-Dec-2023**	13-Dec-2023	×	**18-Dec-2023**	24-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20231206 - NULL	**06-Dec-2023**	**15-Dec-2023**	13-Dec-2023	×	**19-Dec-2023**	24-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231206 - NULL	**06-Dec-2023**	**16-Dec-2023**	20-Dec-2023	✓	**16-Dec-2023**	20-Dec-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20231206 - NULL	**06-Dec-2023**	**15-Dec-2023**	13-Dec-2023	×	**19-Dec-2023**	24-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231206 - NULL	**06-Dec-2023**	**16-Dec-2023**	20-Dec-2023	✓	**16-Dec-2023**	20-Dec-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231206 - NULL	**06-Dec-2023**	**16-Dec-2023**	20-Dec-2023	✓	**16-Dec-2023**	20-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Buchi Ammonia	EK055	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	12	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	16	**18.75**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO3- B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO3- F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NOx-N) and nitrate (NO3-N) by calculation, Combined oxidised Nitrogen (NO2+NO3) in a water extract is determined by direct colourimetry by Discrete Analyser.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 Days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Foreign Material (ENM Guideline)	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	Nitrates and Ammonia	Phenols					HOLD
1	R_BH34_0.1-0.2	S	4/12/23	-	J, ZLB	2,1		X		X									
2	R_BH34_1.0-1.2	S	4/12/23	-	J, ZLB	2,1				X	X								
3	R_BH34_2.0-2.2	S	4/12/23	-	J, ZLB	2,1				X	X								
4	R_BH34_3.0-3.2	S	4/12/23	-	J, ZLB	2,1													X
5	R_BH34_4.3-4.5	S	4/12/23	-	J, ZLB	2,1													X
	QC300_20231204	W	4/12/23	-	AG , P , V	1 ,1, 2													X
6	BH25_0.1-0.2	S	5/12/23	-	J, ZLB	1,1		X											
7	BH25_0.7-0.8	S	5/12/23	-	J, ZLB	1,1				X			X	X					
8	BH25_1.2-1.3	S	5/12/23	-	J, ZLB	1,1				X			X	X					
9	BH25_2.7-2.8	S	5/12/23	-	J, ZLB	1,1						X	X						
10	A-BH09_0.1-0.2	W	5/12/23	-	AG , P , V	1 ,1, 2													X
11	A-BH09_0.5-0.6	S	5/12/23	-	J, ZLB	1,1				X	X								
	A-BH09_2.0-3.0	S	5/12/23	-	BB	1													X
	A-BH09_3.0-4.0	S	5/12/23	-	BB	1													X
12	ACM-BH09_0.6-0.7	S	6/12/23	-	J, ZLB	2,1													X
13	ACM-BH09_1.0-1.1	S	6/12/23	-	J, ZLB	2,1													X
14	ACM-BH09_1.2-1.3	S	6/12/23	-	J, ZLB	2,1													X
15	ACM-BH09_1.5-1.6	S	6/12/23	-	J, ZLB	2,1													X
16	QC300_20231206	W	6/12/23	-	AG , P , V	1 ,1, 2				X									
17	QC100_20231206	S	6/12/23	-	J	1													X
18	QC200_20231206	S	6/12/23	-	J	1													X
19	ACM-BH09_2.0-2.45	S	7/12/23	-	J, ZLB	2,1													X
20	ACM-BH09_2.9-3.0	S	7/12/23	-	J, ZLB	2,1													X
	QC300_20231207	W	7/12/23	-	AG , P , V	1 ,1, 2				X									

TAT

Environmental Division
Sydney
Work Order Reference
ES2343534

Telephone : + 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY:		RECEIVED BY:		METHOD OF SHIPMENT:
Name: Eric Serttas	13/12/2023	Name:	Date: 14/12/23	Name:	Date:	Con' Note No:
Of:	Time: AM	Of:	Time: 11:30	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Zn Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar. *Soil Container Codes:* Jar = Unpreserved glass jar

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: AECOM.	Destination Laboratory
PROJECT MANAGER (PM): JAMES LOTNEY	SITE:	MOBILE: PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION: Type / Code	Total bottles	HOLD
	R-BH34_2.0-2.2		4/12/23		2J 1B		X
	R-BH34_1.0-1.2		4/12/23		1J 1B		X
	R-BH34_0.1-0.2		4/12/23		2J 1B		X
	R-BH34_3.0-3.2		4/12/23		2J 1B		X
	R-BH34_4.0-4.2		4/12/23		[illegible] 1B 2J		X
	QC300		5/12/23		4 vials.		X
	TRIP SPIKE 3		21/11/23		1J		
	TRIP [illegible] BLANK 3		21/11/23		1J		

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name: Jack	Date: 08/12/23	Name:	Date:	Con' Note No:
Of:	Time:	Of: AQ	Time: 1600	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

AECOM

Q4AN(EV)-007-FM1

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: AECOM.	Destination Laboratory
PROJECT MANAGER (PM): JAMES LOONEY	SITE:	MOBILE: PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 / CORE 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	
	A-BH09-N*_1.5-1.95	S	5/12/23		1B		X
	A-BH09-N*-4.5-4.95	S	5/12/23		1B		X
	A-BH09-N*_3.0-3.45	S	5/12/23		1B		X
	R-BH34-N*-6.0-6.45	S	5/12/23		1B		X
	R-BH34-N*_1.5-1.95	S	4/12/23		1B		X
	BH25_N*_3.0-3.45	S	4/12/23		1B		X
	R-BH34_N*_4.5-4.95	S	5/12/23		1B		X
	BH25_N*_1.5-1.95	S	4/12/23		1B		X
	A-BH09_N*_6.0-6.45	S	5/12/23		1B		X
	A-BH09_DS_5.5-6.0	S	5/12/23		1B		X
	R-BH34_N*_3.0-3.45	S	5/12/23		1B		X
	A-BH09_DS_3.5-4.0	S	5/12/23		1B.		X

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name: Jack	Date: 08/11/23	Name:	Date:	Con' Note No:
Of:	Time:	Of: ALS	Time: 1400	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM.	ADDRESS / OFFICE:	SAMPLER: AECOM.	Destination Laboratory
PROJECT MANAGER (PM): JAMES LOONEY	SITE:	MOBILE: PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736/CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION														
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles												HOLD	
	ACM-BH09_2.9-3.0		7/12/23		1B 1J													X	
	~~ACM-BH09_2.0-2.0~~		~~7/12/23~~															X	
	ACM-BH09_1.9-2.0		7/12/23		DS → B.													X	
	ACM-BH09_2.0-2.45		7/12/23		DS → B.													X	
	ACM-BH09_2.0-2.1		7/12/23		1B 1J.													X	
	A-BH09_0.1-0.2		5/12/23		1B 2J													X	
	A-BH09_0.5-0.6		5/12/23		1B 2J													X	
	QC100_6/12/23		6/12/23		1J													X	
	QC200_6/12/23		6/12/23		1J													X	
	ACM-BH09_1.2-1.3		6/12/23		1J 1B													X	
	ACM-BH09_0.6-0.7		6/12/23		1J 1B													X	
	ACM-BH09_1.0-1.1		6/12/23		1J 1B													X	
	ACM-BH09_1.5-1.6		6/12/23		1J 1B													X	
	QC300		6/12/23		4 vials.													X	
																		X	

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Time:	Name: JACK AU	Date: 08/12/23	Name:	Date:	Con' Note No:
Of:		Of:	Time: 1400	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: AECOM.	Destination Laboratory: ALS
PROJECT MANAGER (PM): JAMES LOONEY	SITE:	MOBILE:	PHONE:
PROJECT NUMBER & TASK CODE: 60709736/CDRL1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

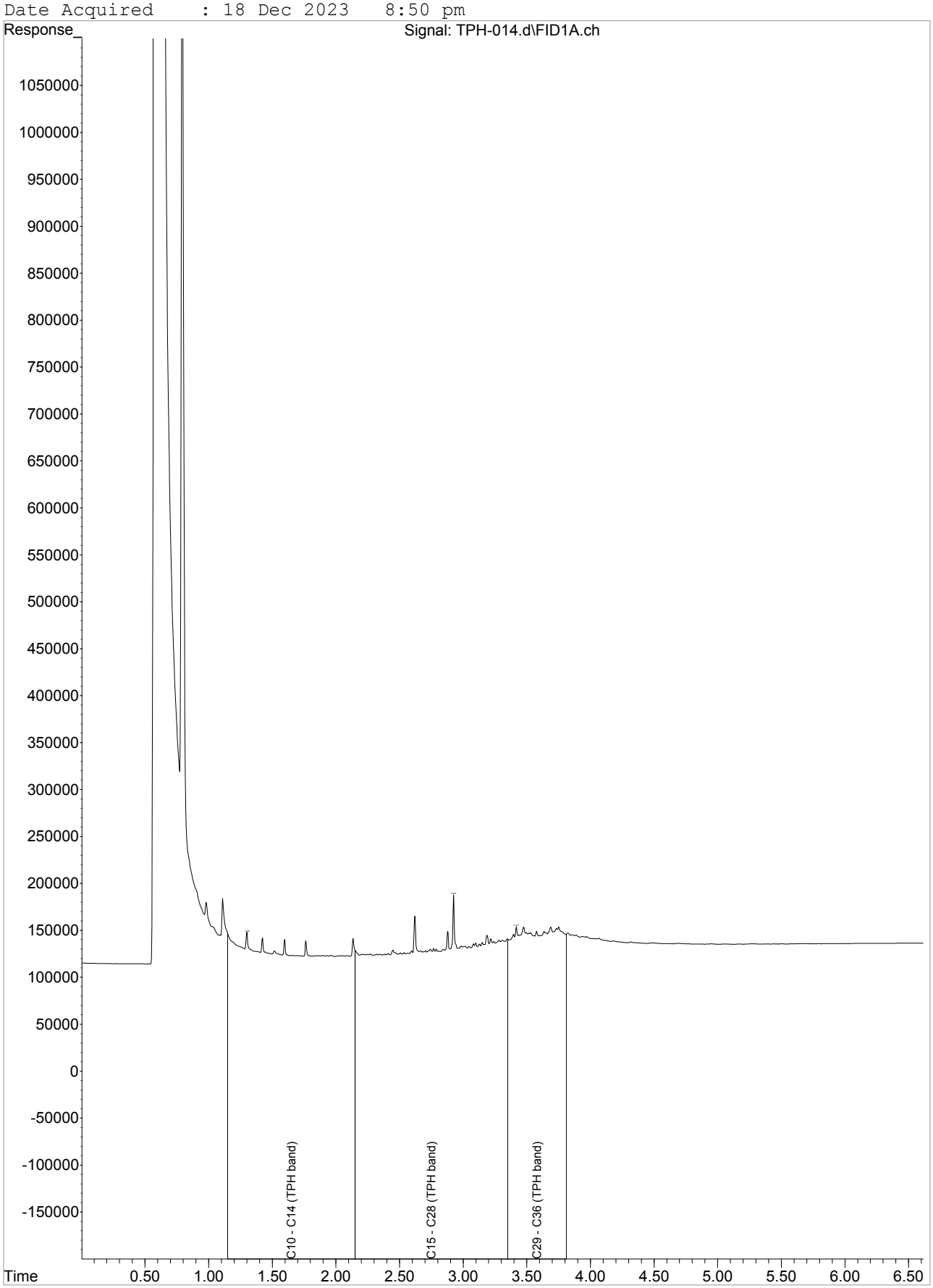
SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	HOLD
	BH25_2.7-2.8	S	5/12/23		1J		X
	BH25_0.1-0.2	S	5/12/23		1J		X
	BH25_1.2-1.3	S	5/12/23		1J		X
	BH25_0.7-0.8	S	5/12/23		1J		X
	QC300	S	5/12/23		4 vials.		X

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name: Jack	Date: 5/12/23	Name:	Date:	Con' Note No:
Of:	Time:	Of: ALS	Time: 1450	Of:	Time:	Transport Co:

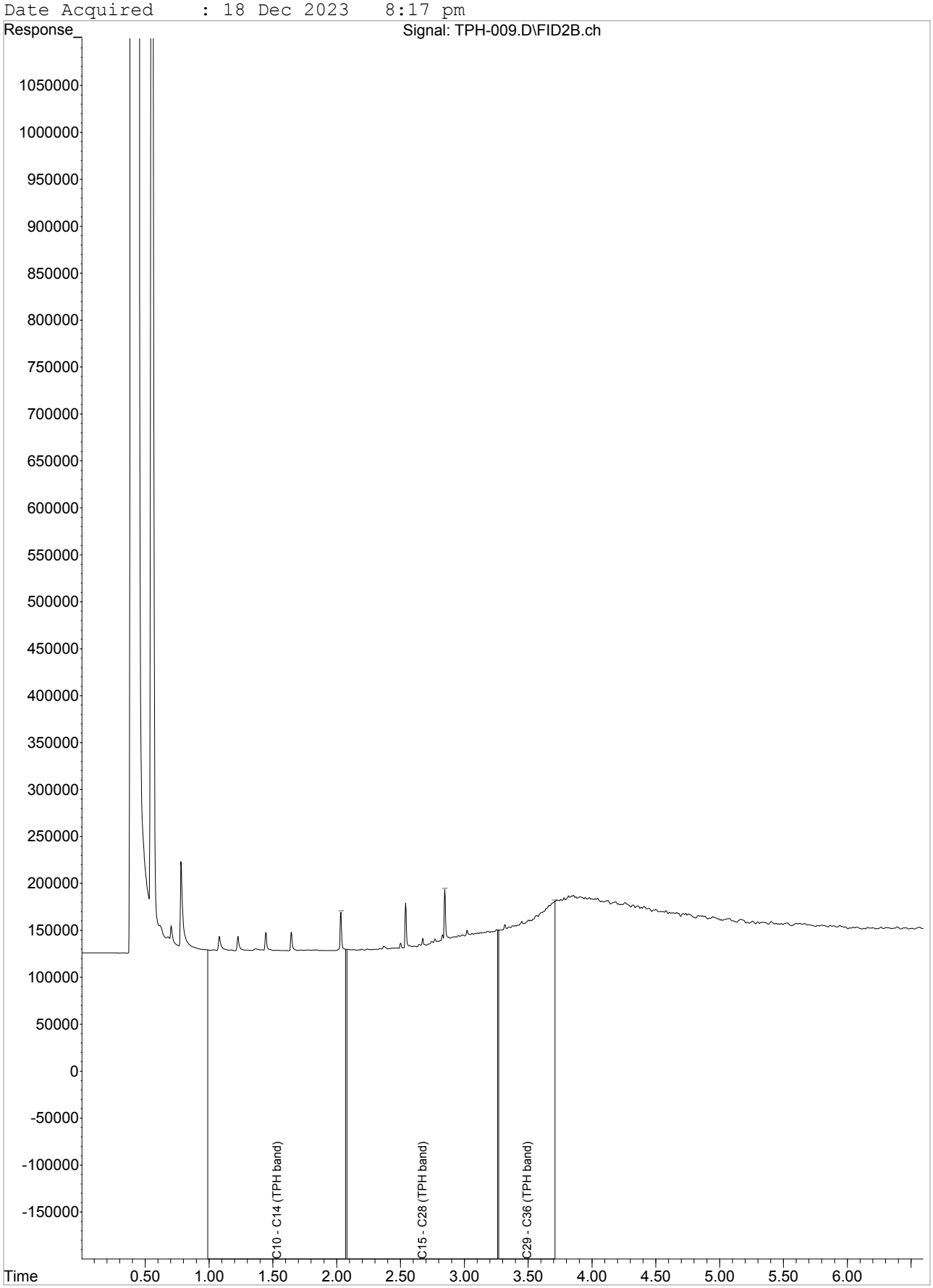
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

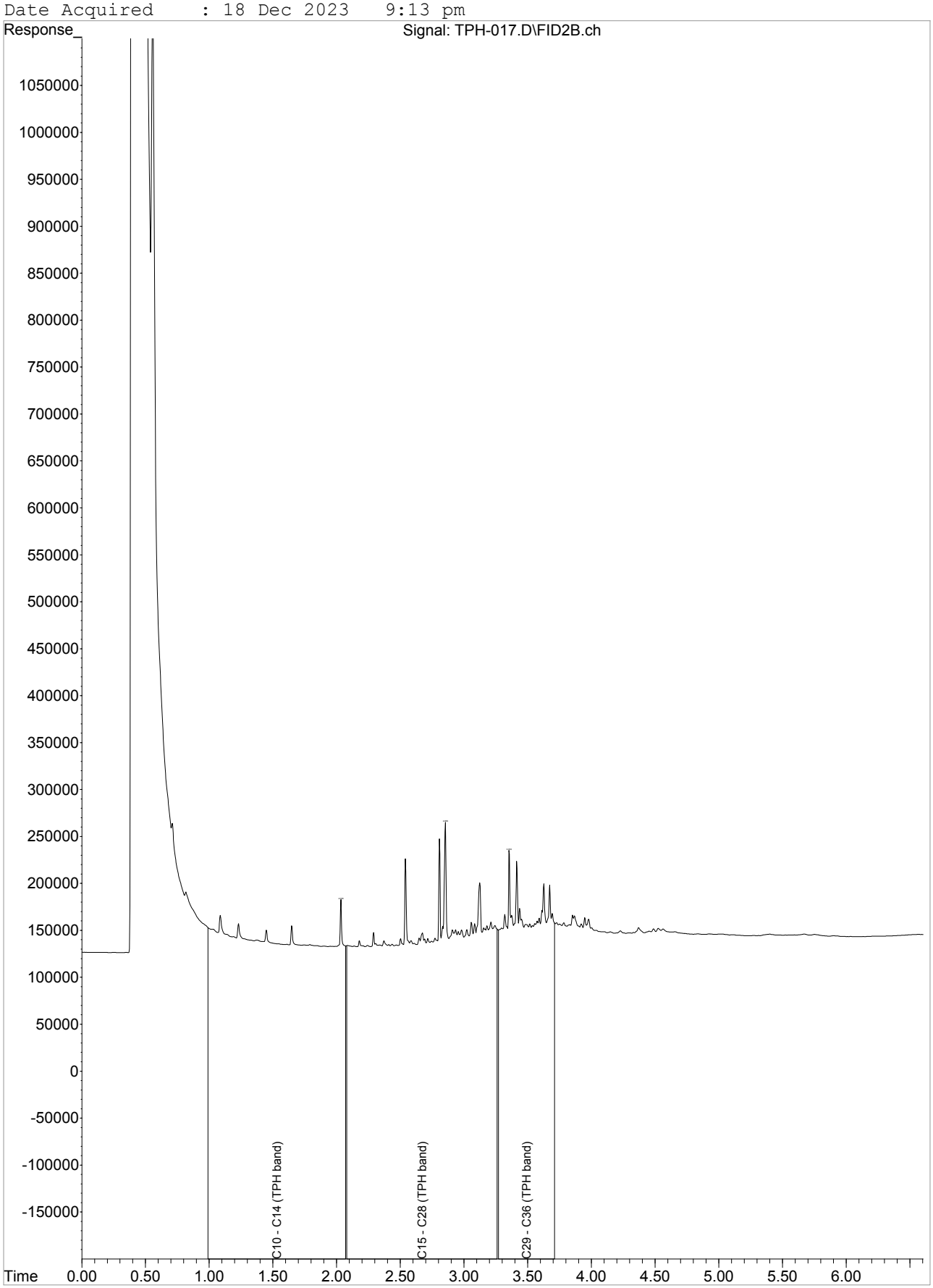
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Data File : TPH-014.d
Laboratory Number: ES2343534-006
Sample ID : BH25_0.1-0.2
Date Acquired : 18 Dec 2023 8:50 pm



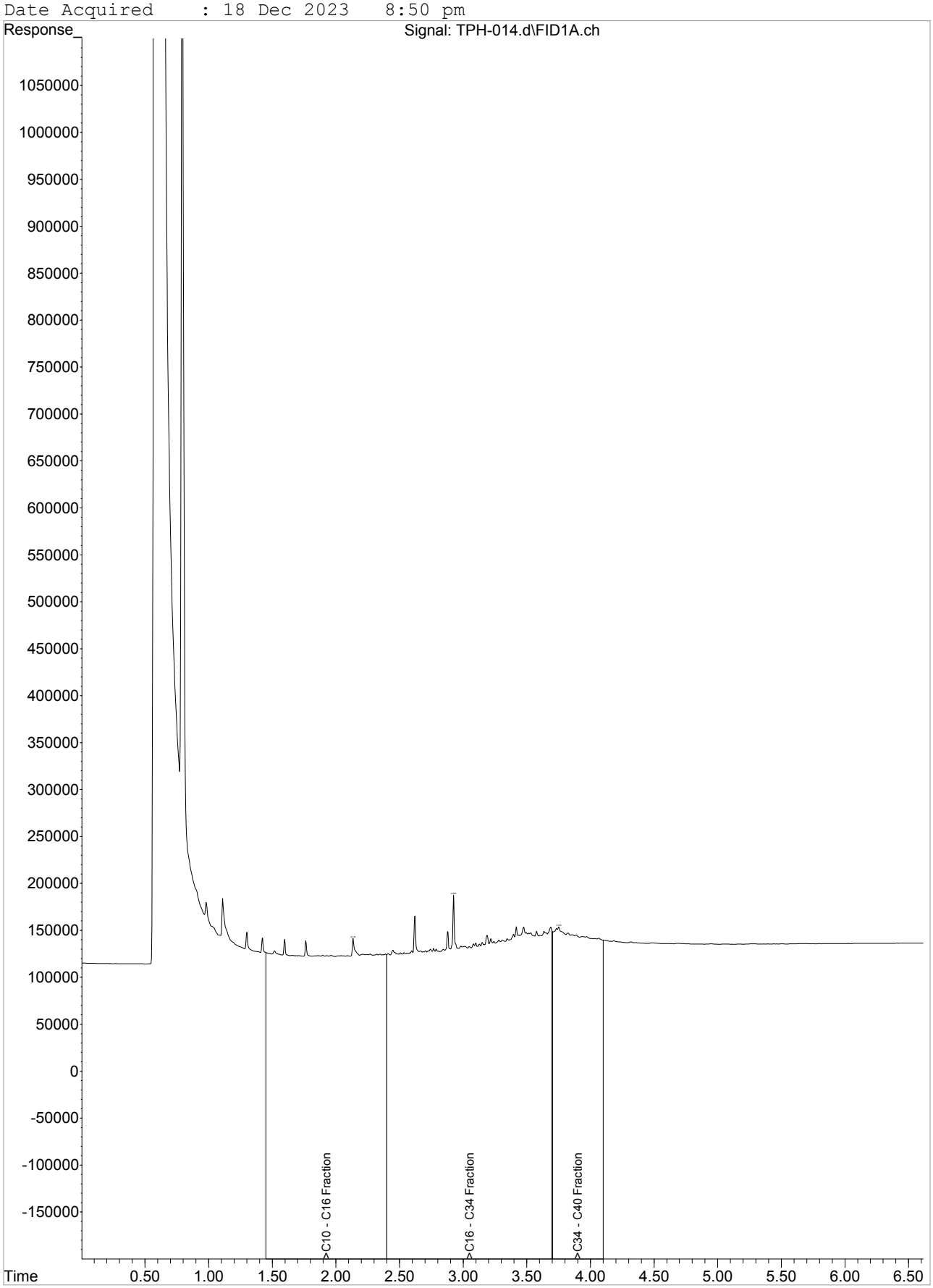
Fraction Scheme : Legacy
Data File : TPH-009.D
Laboratory Number: ES2343534-001
Sample ID : R_BH34_0.1-0.2
Date Acquired : 18 Dec 2023 8:17 pm



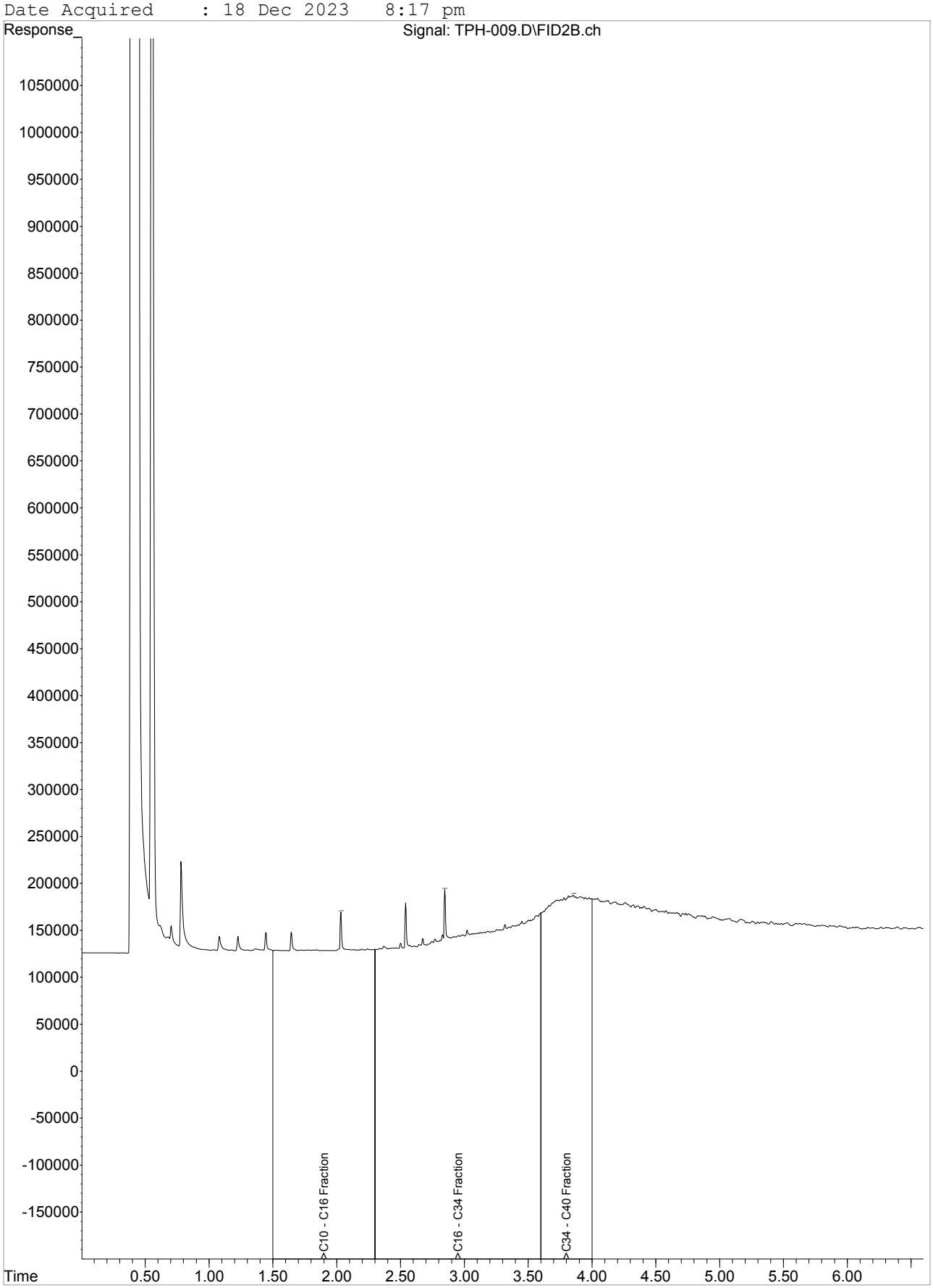
Fraction Scheme : Legacy
Data File : TPH-017.D
Laboratory Number: ES2343534-011
Sample ID : A-BH09_0.5-0.6
Date Acquired : 18 Dec 2023 9:13 pm



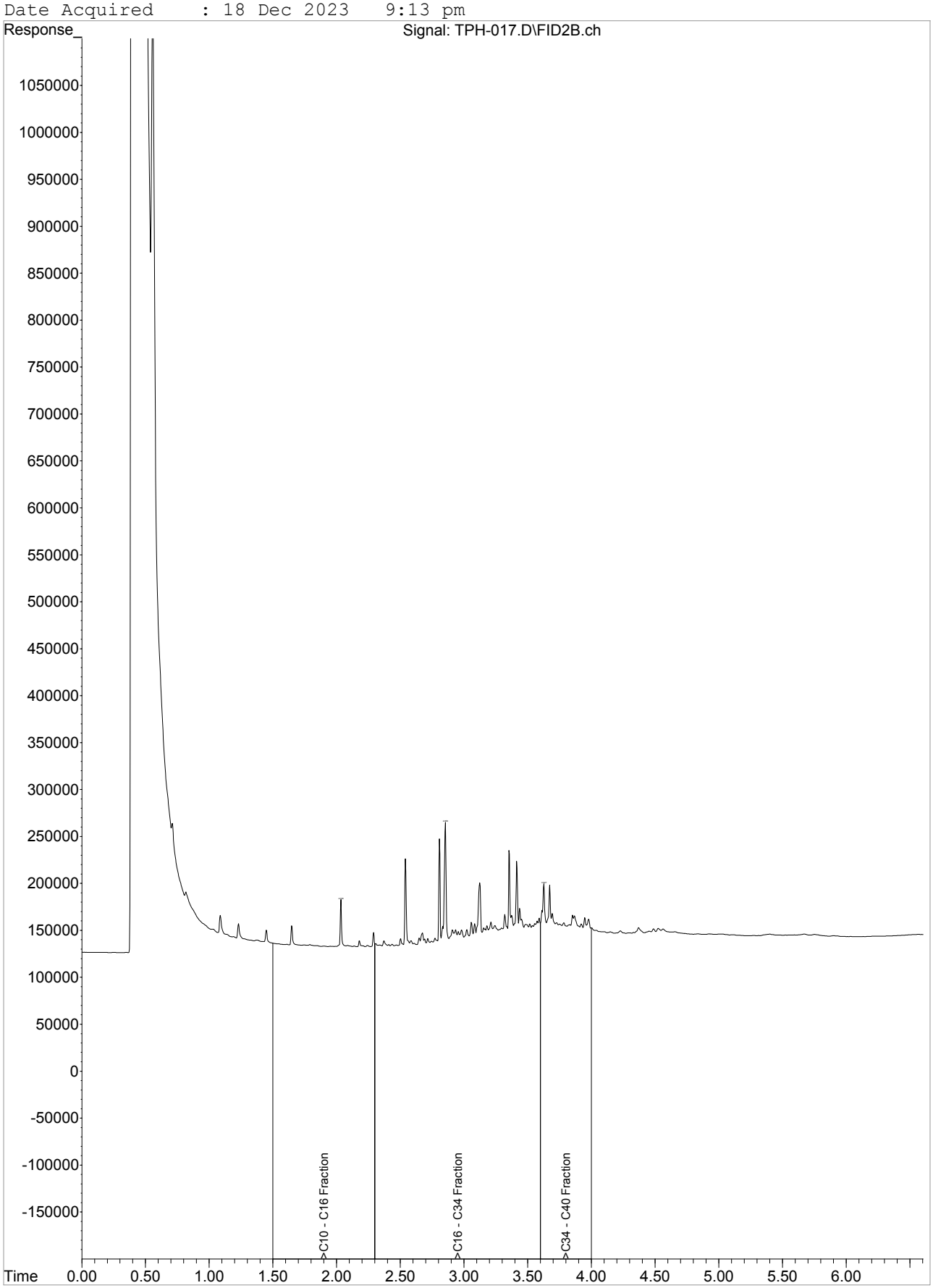
Fraction Scheme : NEPM
Data File : TPH-014.d
Laboratory Number: ES2343534-006
Sample ID : BH25_0.1-0.2
Date Acquired : 18 Dec 2023 8:50 pm



Fraction Scheme : NEPM
Data File : TPH-009.D
Laboratory Number: ES2343534-001
Sample ID : R_BH34_0.1-0.2
Date Acquired : 18 Dec 2023 8:17 pm



Fraction Scheme : NEPM
Data File : TPH-017.D
Laboratory Number: ES2343534-011
Sample ID : A-BH09_0.5-0.6
Date Acquired : 18 Dec 2023 9:13 pm



CERTIFICATE OF ANALYSIS

Work Order	: **ES2343795**	Page	: 1 of 16
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023 11:30
Order number	: 60709736_1.0	Date Analysis Commenced	: 18-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:27
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG020: Poor matrix spike recovery was obtained for Copper on sample ES2343141-#001. Confirmed by reanalysis.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 008-014, . All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
			Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	**----**	**7.4**	**----**	**----**	**----**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.1**	**----**	**16.1**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	**13**	**----**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	**----**	**----**
Chromium	7440-47-3	2	mg/kg	**4**	**3**	**16**	**----**	**----**
Copper	7440-50-8	5	mg/kg	<5	<5	**15**	**----**	**----**
Lead	7439-92-1	5	mg/kg	**8**	<5	**45**	**----**	**----**
Nickel	7440-02-0	2	mg/kg	<2	<2	**7**	**----**	**----**
Zinc	7440-66-6	5	mg/kg	**6**	<5	**214**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	**----**	**----**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	**----**	<0.1	**----**	**----**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
beta-BHC	319-85-7	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
delta-BHC	319-86-8	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
Heptachlor	76-44-8	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
Aldrin	309-00-2	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	**----**	<0.05	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	<0.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	3.6
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	3.8
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	4.0
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	1.6
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	13.0
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	5.6
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		108	----	95.6	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		83.8	----	87.4	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		80.2	----	54.2	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		92.6	----	87.9	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		97.0	----	90.3	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		78.2	----	69.6	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		88.9	----	84.7	----	----
Anthracene-d10	1719-06-8	0.5	%		98.1	----	97.7	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		93.5	----	100	----	----
EP080S: TPH(V)/BTEX Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH26A_0.4-0.5	R-BH26A_0.9-1.0	R-BH27A_0.7-0.8	Trip Blank NULL	Trip Spike NULL
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	28-Nov-2023 00:00	28-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343795-001	ES2343795-002	ES2343795-006	ES2343795-011	ES2343795-012
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.9**	**96.0**	**99.7**	**97.8**	**97.2**
Toluene-D8	2037-26-5	0.2	%		**88.1**	**85.1**	**89.4**	**87.0**	**88.9**
4-Bromofluorobenzene	460-00-4	0.2	%		**86.9**	**83.1**	**90.4**	**87.3**	**89.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TSC NULL	----	----	----	----
				Sampling date / time	28-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-013	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		**5.0**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		**5.3**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**5.4**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		**2.3**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		**18.0**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		**7.7**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**92.2**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**82.0**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**84.8**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231208 NULL	----	----	----	----
				Sampling date / time	07-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-010	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ **Total Polychlorinated biphenyls**	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231208 NULL	----	----	----	----
				Sampling date / time	07-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-010	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L		<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231208 NULL	----	----	----	----
				Sampling date / time	07-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-010	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.5	µg/L		<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231208 NULL	----	----	----	----
				Sampling date / time	07-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-010	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231208 NULL	----	----	----	----
				Sampling date / time	07-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343795-010	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**110**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**89.4**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**89.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**25.1**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**50.3**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**30.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**55.4**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**59.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**67.3**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**126**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**100**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**101**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates - Continued			
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2343795**	Page	: 1 of 17
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Order number	: 60709736_1.0	Date Analysis Commenced	: 18-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5498948)									
ES2343795-001	R-BH26A_0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	3	33.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	6	26.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	6	<5	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5498951)									
ES2343795-006	R-BH27A_0.7-0.8	EA055: Moisture Content	----	0.1 (1.0)*	%	16.1	15.4	4.6	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5498949)									
ES2343795-001	R-BH26A_0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5498321)									
ES2343726-009	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2343726-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5498320)									
ES2343726-009	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5498320) - continued									
ES2343726-009	Anonymous	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2343726-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5498320)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5498320) - continued									
ES2343726-009	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2343726-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5498319)									
ES2343726-009	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2343726-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5498319)									
ES2343726-009	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5498319) - continued									
ES2343726-009	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2343726-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5498318)									
ES2343726-009	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2343726-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5498885)									
ES2343724-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2343795-001	R-BH26A_0.4-0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5498318)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5498318) - continued									
ES2343726-009	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2343726-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5498885)									
ES2343724-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2343795-001	R-BH26A_0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5498885)									
ES2343724-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2343795-001	R-BH26A_0.4-0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5498643)									
ES2343338-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0025	0.0028	12.0	0% - 20%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.040	0.043	8.2	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.566	0.627	10.2	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.118	0.121	2.5	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.064	0.066	4.4	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	2.21	2.30	3.7	0% - 20%
ME2302256-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5498643) - continued									
ME2302256-001	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5498710)									
ES2343795-010	QC300_20231208 NULL	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5500300)									
ES2343423-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5500300)									
ES2343423-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5500300)									
ES2343423-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5498948)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	108	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	88.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	121	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	108	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	106	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	99.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5498949)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	104	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5498321)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	113	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498320)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	104	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498320) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.8	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.5	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5498320)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	80.6	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	83.5	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	83.7	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	74.8	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	53.6	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5498319)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	91.4	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	99.5	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.3	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	91.8	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	72.2	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.6	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	102	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.2	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	85.4	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5498319) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	84.8	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	42.1	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5498319)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	102	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.9	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	103	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	91.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.6	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5498318)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	95.7	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	88.9	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.9	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5498885)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.3	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498318)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	87.3	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	96.8	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498885)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.8	72.4	133
EP080: BTEXN (QCLot: 5498885)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	106	76.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5498885) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.3	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	94.0	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	101	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5498643)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5498710)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.1	77.0	111
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5498338)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	90.8	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498336)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	74.3	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	79.5	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	78.2	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	87.7	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	81.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	79.4	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	80.0	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	82.5	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	82.5	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	84.7	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.0	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	84.2	65.2	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498336) - continued								
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	84.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	98.0	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	84.3	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	87.0	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	88.9	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	76.3	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	88.9	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	89.0	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	81.7	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5498336)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	77.3	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	76.6	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.1	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	80.8	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	86.4	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	82.4	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	78.3	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	89.7	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	81.1	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	83.3	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	75.8	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.3	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	98.8	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	75.1	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	92.3	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	82.2	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	82.0	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	82.9	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	52.0	51.6	128
EP075(SIM)A: Phenolic Compounds (QCLot: 5498337)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	38.8	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	68.8	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	66.0	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	63.4	44.0	88.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5498337) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	69.9	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	66.8	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	67.5	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	67.6	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	70.4	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	65.5	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	71.5	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	43.8	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5498337)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	70.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	73.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	69.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.8	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	73.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	87.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	83.3	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	76.9	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	72.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	75.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	68.8	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	70.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	79.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	74.6	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	69.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5498335)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.1	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	82.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5500300)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498335)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	70.5	53.9	95.5

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498335) - continued								
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	87.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	81.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5500300)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.8	75.0	127
EP080: BTEXN (QCLot: 5500300)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.6	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.3	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	93.2	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.1	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5498948)							
ES2343795-001	R-BH26A_0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	101	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	106	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.8	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	101	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5498949)							
ES2343795-001	R-BH26A_0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	104	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5498321)							
ES2343726-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	82.8	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498320)							
ES2343726-001	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	91.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	87.5	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068A: Organochlorine Pesticides (OC) (QCLot: 5498320) - continued							
ES2343726-001	Anonymous	EP068: Dieldrin	60-57-1	0.5 mg/kg	105	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	83.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	89.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5498320)							
ES2343726-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	78.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	82.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	100	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	78.6	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5498319)							
ES2343726-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.1	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.2	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.7	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	77.8	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5498319)							
ES2343726-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5498318)							
ES2343726-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	93.4	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	116	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	116	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5498885)							
ES2343724-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.6	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498318)							
ES2343726-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	119	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	94.3	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5498885)							
ES2343724-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	79.2	61.1	142
EP080: BTEXN (QCLot: 5498885)							
ES2343724-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	98.4	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	87.1	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.2	66.4	121

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP080: BTEXN (QCLot: 5498885) - continued							
ES2343724-001	Anonymous	EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.5	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.8	61.1	115

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5498643)							
ES2343340-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	117	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	104	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	# 51.8	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5498710)							
ME2302249-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	80.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5500300)							
ES2343423-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.9	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5500300)							
ES2343423-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	81.8	70.0	130
EP080: BTEXN (QCLot: 5500300)							
ES2343423-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	85.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	85.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	88.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	89.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	88.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	97.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2343795**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 14
Order number	: 60709736_1.0	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020T: Total Metals by ICP-MS	ES2343340--001	Anonymous	**Copper**	7440-50-8	51.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
Trip Blank - NULL	18-Dec-2023	12-Dec-2023	**6**	18-Dec-2023	12-Dec-2023	**6**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
Trip Blank - NULL	18-Dec-2023	12-Dec-2023	**6**	18-Dec-2023	12-Dec-2023	**6**
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
Trip Blank - NULL, Trip Spike - NULL, TSC - NULL	18-Dec-2023	12-Dec-2023	**6**	18-Dec-2023	12-Dec-2023	**6**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP066: Polychlorinated Biphenyls (PCB)						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP068A: Organochlorine Pesticides (OC)						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_20231208 - NULL	18-Dec-2023	14-Dec-2023	**4**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055)							
R-BH26A_0.9-1.0	**08-Dec-2023**	**----**	----	**----**	**18-Dec-2023**	22-Dec-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**----**	----	**----**	**18-Dec-2023**	22-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	05-Jun-2024	✓	**18-Dec-2023**	05-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	05-Jan-2024	✓	**19-Dec-2023**	05-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH26A_0.4-0.5, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**18-Dec-2023**	22-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**28-Nov-2023**	**18-Dec-2023**	12-Dec-2023	×	**18-Dec-2023**	12-Dec-2023	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**18-Dec-2023**	22-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	**08-Dec-2023**	**18-Dec-2023**	22-Dec-2023	✓	**19-Dec-2023**	27-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**28-Nov-2023**	**18-Dec-2023**	12-Dec-2023	×	**18-Dec-2023**	12-Dec-2023	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) R-BH26A_0.4-0.5, R-BH26A_0.9-1.0, R-BH27A_0.7-0.8	08-Dec-2023	18-Dec-2023	22-Dec-2023	✓	18-Dec-2023	22-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL, Trip Spike - NULL, TSC - NULL	28-Nov-2023	18-Dec-2023	12-Dec-2023	×	18-Dec-2023	12-Dec-2023	×

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	04-Jun-2024	✓	18-Dec-2023	04-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231208 - NULL	07-Dec-2023	----	----	----	18-Dec-2023	04-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	21-Dec-2023	✓	18-Dec-2023	21-Dec-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	14-Dec-2023	×	20-Dec-2023	27-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231208 - NULL	07-Dec-2023	18-Dec-2023	21-Dec-2023	✓	18-Dec-2023	21-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231208 - NULL	**07-Dec-2023**	**18-Dec-2023**	21-Dec-2023	✓	**18-Dec-2023**	21-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2343795**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736_1.0	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 14-Dec-2023 11:30	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 20-Dec-2023	Scheduled Reporting Date	: **20-Dec-2023**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 14.0'C, 18.0'C & 17.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 14 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample ID R-BH26A_0.0-0.2 & R-BH26A_0.5-0.8 was not received.**
- **Sample 14 received as extra.**
- **The sampling date listed on the COC is 08/12/23, however the bottles were all dated 28/11/23 for samples 11 and 12.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2343795-008 : [08-Dec-2023] : QC100_20231208 - NULL
ES2343795-009 : [07-Dec-2023] : QC200_20231208 - NULL
ES2343795-010 : [07-Dec-2023] : QC300_20231208 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2343795-001	08-Dec-2023 00:00	R-BH26A_0.4-0.5		✓				✓
ES2343795-002	08-Dec-2023 00:00	R-BH26A_0.9-1.0		✓		✓		
ES2343795-003	08-Dec-2023 00:00	R-BH26A_1.4-1.5	✓					
ES2343795-004	08-Dec-2023 00:00	R-BH27A_0.05-0.15	✓					
ES2343795-005	08-Dec-2023 00:00	R-BH27A_0.4-0.5	✓					
ES2343795-006	08-Dec-2023 00:00	R-BH27A_0.7-0.8		✓				✓
ES2343795-007	08-Dec-2023 00:00	R-BH27A_1.4-1.5	✓					
ES2343795-008	08-Dec-2023 00:00	QC100_20231208 NULL	✓					
ES2343795-009	07-Dec-2023 00:00	QC200_20231208 NULL	✓					
ES2343795-011	28-Nov-2023 00:00	Trip Blank NULL					✓	
ES2343795-012	28-Nov-2023 00:00	Trip Spike NULL			✓			
ES2343795-013	28-Nov-2023 00:00	TSC NULL			✓			
ES2343795-014	07-Dec-2023 00:00	R-BH26A_0.1-0.2	✓					

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-19T TRH/BTEXN/PAH/Phenols/OC/OP/PCB/8 metals
ES2343795-010	07-Dec-2023 00:00	QC300_20231208 NULL	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP080: TRH Volatiles/BTEX							
Trip Blank	Soil Glass Jar - Unpreserved	12-Dec-2023	12-Dec-2023	14-Dec-2023	×	15-Dec-2023	×
Trip Spike	Soil Glass Jar - Unpreserved	12-Dec-2023	12-Dec-2023	14-Dec-2023	×	15-Dec-2023	×
TSC	Soil Glass Jar - Unpreserved	12-Dec-2023	12-Dec-2023	14-Dec-2023	×	15-Dec-2023	×

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP066: Polychlorinated Biphenyls (PCB)							
QC300_20231208	Amber Glass Bottle - Unpreserve	14-Dec-2023	27-Jan-2024	14-Dec-2023	✓	15-Dec-2023	×
EP068: Pesticides by GCMS							
QC300_20231208	Amber Glass Bottle - Unpreserve	14-Dec-2023	27-Jan-2024	14-Dec-2023	✓	15-Dec-2023	×
EP071: TRH - Semivolatile Fraction							
QC300_20231208	Amber Glass Bottle - Unpreserve	14-Dec-2023	27-Jan-2024	14-Dec-2023	✓	15-Dec-2023	×
EP075(SIM): PAH/Phenols (GC/MS - SIM)							
QC300_20231208	Amber Glass Bottle - Unpreserve	14-Dec-2023	27-Jan-2024	14-Dec-2023	✓	15-Dec-2023	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedman@aecom.com

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN	HOLD
	R-BH26A_0.0-0.2	S	8/12/23	-	J, ZLB	2,1		X						
	R-BH26A_0.4-0.6	S	8/12/23	-	J, ZLB	2,1				X	X			
	R-BH26A_0.9-1.0	S	8/12/23	-	J, ZLB	2,1						X		
	R-BH26A_1.4-1.5	S	8/12/23	-	J, ZLB	2,1								
	R-BH26A_0.5-0.8	S	8/12/23	-	BB	1	X							X
	R-BH27A_0.05-0.15	S	8/12/23	-	J, ZLB	2,1								
	R-BH27A_0.4-0.5	S	8/12/23	-	J, ZLB	2,1								X
	R-BH27A_0.7-0.8	S	8/12/23	-	J, ZLB	2,1								X
	R-BH27A_1.4-1.5	S	8/12/23	-	J, ZLB	2,1				X	X			
	QC100_20231208	S	8/12/23	-	J	1								X
	QC200_20231208	S	8/12/23	-	J	1								X
	QC300_20231208	W	7/12/23	-	AG, P, V	1,1,2				X	X			X
	Trip Blank / Trip Spike	S	lab prepared		J	1,1						X		

1 2 3 4 5 6 7 8 9 10 11 12

12 15C

11 R-BH26_D.1-0.2

Received as extension

Andrew

16/12/23

11.19 AM

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY	
Name: Eric Serttas	8/12/2023	Name:	Date:	Name:	Date:
Of:	Time: AM	Of:	Time:	Of:	Time:

Environmental Division Sydney
Work Order Reference
ES2343795

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved gl

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2343853**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 14-Dec-2023 19:00	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 04-Jan-2024	Scheduled Reporting Date	: **04-Jan-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.0'C, 8.2'C, 10.'2C - Ice Bricks present
Receipt Detail	: Large esky	No. of samples received / analysed	: 14 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the addition of analysis as per updated COC.
- **TRH(SV)/PAH cannot be conducted for sample 11 as no orange amber bottle was provided.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2343853-006 : [13-Dec-2023] : QC300_20231213 - NULL
ES2343853-011 : [14-Dec-2023] : QC300_20231214 - NULL
ES2343853-014 : [11-Dec-2023] : Trip Control Spike - 9

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2343853-001	13-Dec-2023 00:00	A-BH03_0.3-0.4	✓					
ES2343853-002	13-Dec-2023 00:00	A-BH03_0.8-1.5	✓					
ES2343853-003	13-Dec-2023 00:00	A-BH03_2.8-3.0	✓					
ES2343853-004	13-Dec-2023 00:00	A-BH03_4.3-4.5	✓					
ES2343853-005	13-Dec-2023 00:00	A-BH03_5.3-5.5	✓					
ES2343853-007	14-Dec-2023 00:00	BH09_0.0-0.2		✓	✓	✓	✓	✓
ES2343853-008	14-Dec-2023 00:00	BH09_0.9-1.0	✓					
ES2343853-009	14-Dec-2023 00:00	BH09_1.9-2.0		✓		✓	✓	✓
ES2343853-010	14-Dec-2023 00:00	BH09_2.9-3.0	✓					

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2343853-012	11-Dec-2023 00:00	Trip Blank NULL		✓
ES2343853-013	11-Dec-2023 00:00	Trip Spike 9	✓	
ES2343853-014	11-Dec-2023 00:00	Trip Control Spike 9	✓	

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2343853-006	13-Dec-2023 00:00	QC300_20231213 NULL	✓
ES2343853-011	14-Dec-2023 00:00	QC300_20231214 NULL	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

STEPHEN RANDALL

- *AU Certificate of Analysis - NATA (COA)	Email	Stephen.Randall@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Stephen.Randall@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Stephen.Randall@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Stephen.Randall@aecom.com
- Chain of Custody (CoC) (COC)	Email	Stephen.Randall@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Stephen.Randall@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CERTIFICATE OF ANALYSIS

Work Order	: **ES2343853**	Page	: 1 of 11
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023 19:00
Order number	: 60709736	Date Analysis Commenced	: 21-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:41
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: Poor duplicate precision due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 006, 011-013, . All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
			Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**12.2**	**16.3**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----
Organic Fibre	----	-	--	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**403**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**7**	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**14**	**6**	----	----	----
Copper	7440-50-8	5	mg/kg	**21**	**5**	----	----	----
Lead	7439-92-1	5	mg/kg	**49**	**11**	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	**77**	**14**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
			Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Chloromethane	74-87-3	5	mg/kg	<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
				Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
				Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
				Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**4.9**	**7.0**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**5.5**	**7.8**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**5.9**	**8.2**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**2.3**	**3.2**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	**18.6**	**26.2**
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	**8.2**	**11.4**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0004**	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
				Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0004**	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0004**	<0.0002	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**93.1**	**75.9**	----	----	----
Toluene-D8	2037-26-5	0.5	%		**83.0**	**83.3**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**80.5**	**79.2**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**78.4**	**87.7**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**84.7**	**94.4**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.2**	**95.2**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**96.7**	**103**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**103**	**112**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH09_0.0-0.2	BH09_1.9-2.0	Trip Blank NULL	Trip Spike 9	Trip Control Spike 9
				Sampling date / time	14-Dec-2023 00:00	14-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343853-007	ES2343853-009	ES2343853-012	ES2343853-013	ES2343853-014
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		**106**	**114**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**89.4**	**73.2**	**90.9**	**91.4**	**86.6**
Toluene-D8	2037-26-5	0.2	%		**85.4**	**86.0**	**95.3**	**98.4**	**93.2**
4-Bromofluorobenzene	460-00-4	0.2	%		**87.9**	**85.1**	**79.8**	**83.0**	**79.7**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**96.2**	**99.8**	**----**	**----**	**----**
13C8-PFOA	----	0.0002	%		**97.8**	**95.6**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH09_0.0-0.2 - 14-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2343853**	Page	: 1 of 15
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 21-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5512185)									
ES2344311-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	9	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	18	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	38	37	0.0	No Limit
ES2344196-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	13	46.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	33	69.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	14	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5512190)									
EB2339929-008	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	53.9	51.4	4.7	0% - 20%
ES2344196-010	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	23.9	23.5	1.5	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5512186)									
ES2344311-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344196-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5510242)									
ES2343935-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5510242)									
ES2343935-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5 (4)*	mg/kg	<4	<4	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5510242)									
ES2343935-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5510242) - continued									
ES2343935-001	Anonymous	EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5510242)									
ES2343935-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	6.1	5.0	19.3	0% - 50%
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5510153)									
ES2343853-007	BH09_0.0-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2344316-014	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5510153)									
ES2343853-007	BH09_0.0-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2344316-014	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5510153) - continued									
ES2344316-014	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5510154)									
ES2343853-007	BH09_0.0-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344316-014	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5510241)									
ES2343935-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	82	30	93.1	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5510154)									
ES2343853-007	BH09_0.0-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344316-014	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5510241)									
ES2343935-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	118	# 42	94.5	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5510241)									
ES2343935-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	0.6	<0.5	20.3	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	1.6	<0.5	103	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5513789) - continued									
ES2344423-005	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2344222-014	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5513241)									
ES2343853-007	BH09_0.0-0.2	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	0.0003	26.4	No Limit
ES2344423-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5513241)									
ES2343853-007	BH09_0.0-0.2	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2344423-006	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5513241)									
ES2343853-007	BH09_0.0-0.2	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5513241) - continued									
ES2343853-007	BH09_0.0-0.2	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2344423-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5512185)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	103	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	98.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	120	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	104	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	92.0	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5512186)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	92.5	70.0	125
EP074D: Fumigants (QCLot: 5510242)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	97.9	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	107	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	97.8	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	102	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	109	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5510242)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	89.2	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	104	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	99.2	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	90.0	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	96.1	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	103	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	109	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	74.2	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.4	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.4	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	98.5	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	98.1	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	99.7	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	97.9	59.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5510242) - continued								
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	103	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	106	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	110	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	111	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	103	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	107	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	105	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	115	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	115	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	97.0	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	110	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	98.9	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5510242)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	105	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	101	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.3	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.3	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	105	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	100	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	109	52.0	122
EP074G: Trihalomethanes (QCLot: 5510242)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	103	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	100	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	107	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5510153)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	102	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	96.2	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.2	67.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5510153) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	83.6	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	98.7	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	99.3	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	101	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	88.8	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.3	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	50.7	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5510153)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	97.7	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	105	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	104	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	110	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	93.5	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.8	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	99.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510154)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	98.8	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	105	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510241)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.3	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	81.6	72.2	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510154)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	106	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	105	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	110	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510241)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	92.2	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	79.8	72.4	133
EP080: BTEXN (QCLot: 5510241)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.7	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	86.2	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	90.1	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.9	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	78.8	122
EP080: BTEXN (QCLot: 5513789)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5513241)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.0	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5513241)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	92.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5513241)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	102	62.0	145

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5513241) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	126	69.2	143

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5512185)							
ES2343853-007	BH09_0.0-0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	91.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	86.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.6	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5512186)							
ES2343853-007	BH09_0.0-0.2	EG035T: Mercury	7439-97-6	5 mg/kg	76.5	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5510242)							
ES2344387-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	74.7	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	80.6	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5510242)							
ES2344387-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	84.3	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5510153)							
ES2343853-007	BH09_0.0-0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	114	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	100	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	83.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5510153)							
ES2343853-007	BH09_0.0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510154)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510154) - continued							
ES2343853-007	BH09_0.0-0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	78.6	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	78.4	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	88.8	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510241)							
ES2344387-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.9	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510154)							
ES2343853-007	BH09_0.0-0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	73.0	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	77.1	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	87.3	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510241)							
ES2344387-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	78.3	61.1	142
EP080: BTEXN (QCLot: 5510241)							
ES2344387-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.4	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	77.4	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.4	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.1	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.1	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	84.1	61.1	115
EP080: BTEXN (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	94.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.3	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.7	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.2	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.1	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5513241)							
ES2343853-007	BH09_0.0-0.2	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	80.0	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	88.3	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	82.4	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5513241)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5513241) - continued							
ES2343853-007	BH09_0.0-0.2	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	88.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	99.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.6	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	96.5	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5513241)							
ES2343853-007	BH09_0.0-0.2	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	80.1	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	88.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	109	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	105	69.2	143

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2343853**	Page	: 1 of 6
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 14
Order number	: 60709736	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES2343935--001	Anonymous	**C6 - C10 Fraction**	C6_C10	94.5 %	0% - 50%	**RPD exceeds LOR based limits**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**----**	----	**----**	**22-Dec-2023**	28-Dec-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH09_0.0-0.2	**14-Dec-2023**	**----**	----	**----**	**22-Dec-2023**	11-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**22-Dec-2023**	11-Jun-2024	✓	**24-Dec-2023**	11-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**22-Dec-2023**	11-Jan-2024	✓	**27-Dec-2023**	11-Jan-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	21-Dec-2023	✓	**21-Dec-2023**	21-Dec-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	21-Dec-2023	✓	**21-Dec-2023**	21-Dec-2023	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	21-Dec-2023	✓	**21-Dec-2023**	21-Dec-2023	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
BH09_0.0-0.2, BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	21-Dec-2023	✓	**21-Dec-2023**	21-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**28-Dec-2023**	28-Dec-2023	✓	**28-Dec-2023**	06-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**28-Dec-2023**	28-Dec-2023	✓	**28-Dec-2023**	06-Feb-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank - NULL		**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	28-Dec-2023	✓	**21-Dec-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**28-Dec-2023**	28-Dec-2023	✓	**29-Dec-2023**	06-Feb-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank - NULL		**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	28-Dec-2023	✓	**21-Dec-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**28-Dec-2023**	28-Dec-2023	✓	**29-Dec-2023**	06-Feb-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank - NULL, Trip Control Spike - 9	Trip Spike - 9,	**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**21-Dec-2023**	28-Dec-2023	✓	**21-Dec-2023**	28-Dec-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**27-Dec-2023**	11-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**27-Dec-2023**	11-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**27-Dec-2023**	11-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH09_0.0-0.2,	BH09_1.9-2.0	**14-Dec-2023**	**27-Dec-2023**	11-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: DAVID	Destination Laboratory
PROJECT MANAGER (PM):	SITE:	MOBILE: 0416629847 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION Type / Code	Total bottles	HOLD
1	BH09_0.0-0.2 23121 4	Soil	14/12		Jar	2	
2	BH09_0.0-0.2 23121 4	Soil	14/12		Bag	1	
3	BH09_0.9-1.0 23121 4	Soil	14/12		Jar	2	
4	BH09_0.9-1.0 23121 4	Soil	14/12		Bag	1	
5	BH09_1.9-2.0_23121 4	Soil	14/12		Jar	2	
6	BH09_1.9-2.0 23121 4	Soil	14/12		Bag	1	
7	BH09_2.9-3.0_23121 4	Soil	14/12		Jar	2	
8	BH09_2.9-3.0_23121 4	Soil	14/12		Bag	1	
9	QC300_23121 4	W	14/12		Jar	5	
10	A_BH03_3.3-5.5_23123	Soil	13/12		Bag	1	
11	A_BH03-4.3-4.5	S	13/12		Bag	1	
12	ABH03-2.9-3.0	S	13/12		Bag	1	
13	ABH03_0.3-0.4	S	13/12		Bag	1	
14	ABH03-0.8-1.5	S	13/12		Bag	1	

Environmental Division
Sydney
Work Order Reference
ES2343853

Telephone : + 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name:	Date:	Name: Sonya Veplak ALS	Date: 14/12/23	Con' Note No:
Of:	Time:	Of:	Time:	Of:	Time: 1900	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE: ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com, stephen.randall@aecom.com	
RESULTS REQUIRED (Date): 5 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

UPDATED COC

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (FQM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN	Phenols	VOCs	PFAS (short suite)	CHCs		HOLD
1	A-BH03_0.3-0.4	S	13/12/23	-	Ziplock bag	1													X
2	A-BH03_0.8-1.0	S	13/12/23	-	Ziplock bag	1													X
3	A-BH03_2.8-3.0	S	13/12/23	-	Ziplock bag	1													X
4	A-BH03_4.3-4.5	S	13/12/23	-	Ziplock bag	1													X
5	A-BH03_5.5-5.5	S	13/12/23	-	Ziplock bag	1													X
6	QC300_20231213	W	13/12/23	-	AG , P , V	1 ,1, 2													X
7	BH09_0.0-0.2	S	14/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1		X		X				X		X	X		
8	BH09_0.9-1.0	S	14/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
9	BH09_1.9-2.0	S	14/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X		
10	BH09_2.9-3.0	S	14/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
11	QC300_20231214	W	14/12/23	-	AG , P , V, PFAS bottle	1 ,1, 2, 2				X									
12	Trip Blank/ Trip Spike	S	lab prepared		Jar	1							X						
13	TS																		
14	TSC																		

Environmental Division Sydney
Work Order Reference
ES2343853

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		
Name: Eric Serttas	Date: 20/12/23	Name:	Date:	Name:	Date: 21/12/23	Co
Of:	Time: PM	Of:	Time:	Of: AS	Time: 1147	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

CERTIFICATE OF ANALYSIS

Work Order	: **ES2343854**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023 19:00
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:45
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 28		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001, 005, 009, 021, 024-025. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EA200: N/A - Not Applicable
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
			Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	6.8	5.3	18.2	15.4	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	----	----
Asbestos (Trace)	1332-21-4	-	-	No	No	----	----	----
Asbestos Type	1332-21-4	-	--	-	-	----	----	----
Synthetic Mineral Fibre	----	-	--	No	No	----	----	----
Organic Fibre	----	-	--	No	No	----	----	----
Sample weight (dry)	----	0.01	g	313	275	----	----	----
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	B.SCHRADER	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	<5	5	5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	8	22	20	16	----
Copper	7440-50-8	5	mg/kg	20	57	13	13	----
Lead	7439-92-1	5	mg/kg	211	<5	15	13	----
Nickel	7440-02-0	2	mg/kg	3	80	4	4	----
Zinc	7440-66-6	5	mg/kg	247	37	32	27	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	5	mg/kg		----	----	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg		----	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg		----	----	<5	<5	----
Chloroethane	75-00-3	5	mg/kg		----	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	<0.5	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	----	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	----	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	----	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	----	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	----	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	----	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	----	<0.0002	<0.0002	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	**92.7**	**99.4**	----
Toluene-D8	2037-26-5	0.5	%		----	----	**89.7**	**102**	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	**86.0**	**93.6**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**80.4**	**76.3**	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**81.1**	**82.1**	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**88.1**	**82.6**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**92.3**	**90.6**	----
Anthracene-d10	1719-06-8	0.5	%		----	----	**102**	**97.2**	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**106**	**99.1**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH30_0.0-0.2	ACM-TP09_0.035-0.1	A-BH03_0.7-0.8	A-BH03_2.0-2.1	Trip Blank NULL
				Sampling date / time	12-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	11-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2343854-001	ES2343854-007	ES2343854-013	ES2343854-014	ES2343854-022
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	94.8	102	93.3
Toluene-D8	2037-26-5	0.2	%		----	----	89.8	102	95.8
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	78.2	86.1	79.2
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	----	92.1	107	----
13C8-PFOA	----	0.0002	%		----	----	98.8	100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Trip Spike 7	Trip Spike Control 7	----	----	----
			Sampling date / time	11-Dec-2023 00:00	11-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2343854-023	ES2343854-026	--------	--------	--------
				Result	Result	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	**6.6**	**6.8**	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**7.4**	**7.5**	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**7.8**	**7.9**	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**3.0**	**3.0**	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	**24.8**	**25.2**	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	**10.8**	**10.9**	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.2**	**85.5**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**102**	**92.4**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**86.1**	**78.0**	----	----	----

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)			Sample ID	ACM-1 NULL	ACM-2 NULL	----	----	----
			Sampling date / time	12-Dec-2023 00:00	12-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2343854-024	ES2343854-025	--------	--------	--------
				Result	Result	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**Yes**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**-**	**Ch + Am**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-	**No**	**N/A**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**34.6**	**0.71**	**----**	**----**	**----**
Synthetic Mineral Fibre	----	-	-	**No**	**No**	**----**	**----**	**----**
Organic Fibre	----	-	-	**Yes**	**No**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	**B.SCHRADER**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231212 NULL	----	----	----	----
				Sampling date / time	12-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343854-005	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231212 NULL	----	----	----	----
				Sampling date / time	12-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2343854-005	--------	--------	--------	--------
					Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	----	----	----	----
13C8-PFOA	----	0.02	%		**103**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R-BH30_0.0-0.2 - 12-Dec-2023 00:00	A soil sample.
EA200: Description	ACM-TP09_0.035-0.1 - 13-Dec-2023 00:00	A soil sample.

Sub-Matrix: **SOLID**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	ACM-1NULL - 12-Dec-2023 00:00	One piece of cement sheeting.
EA200: Description	ACM-2NULL - 12-Dec-2023 00:00	A collection of asbestos cement sheeting debris.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

QUALITY CONTROL REPORT

Work Order	: **ES2343854**	Page	: 1 of 19
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 28		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5512185)									
ES2344311-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	9	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	17	18	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	38	37	0.0	No Limit
ES2344196-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	13	46.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	33	69.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	14	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5518321)									
ES2343854-013	A-BH03_0.7-0.8	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	19	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	13	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	6.9	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5518321) - continued									
ES2343854-013	A-BH03_0.7-0.8	EG005T: Zinc	7440-66-6	5	mg/kg	32	32	0.0	No Limit
ES2344543-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	19	5.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	23	26	14.9	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	32	6.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	31	23	30.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	107	107	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5512190)									
EB2339929-008	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	53.9	51.4	4.7	0% - 20%
ES2344196-010	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	23.9	23.5	1.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5512227)									
EB2339929-032	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	62.2	60.5	2.9	0% - 20%
ES2343854-013	A-BH03_0.7-0.8	EA055: Moisture Content	----	0.1 (1.0)*	%	18.2	18.6	2.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5512186)									
ES2344311-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344196-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5518322)									
ES2343854-013	A-BH03_0.7-0.8	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344543-009	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.4	0.4	0.0	No Limit
EP074D: Fumigants (QC Lot: 5517462)									
ES2344576-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5517462)									
ES2344576-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5517462) - continued									
ES2344576-001	Anonymous	EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5517462)									
ES2344576-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5517462)									
ES2344576-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5510153)									
ES2343853-007	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5510153) - continued									
ES2343853-007	Anonymous	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2344316-014	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5510153)									
ES2343853-007	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5510153) - continued									
ES2343853-007	Anonymous	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2344316-014	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5510154)									
ES2343853-007	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344316-014	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5517461)									
ES2344576-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5510154)									
ES2343853-007	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5510154) - continued									
ES2343853-007	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344316-014	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5517461)									
ES2344576-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2344222-014	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5517461)									
ES2344576-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5513241)									
ES2343853-007	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	0.0003	26.4	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5513241) - continued									
ES2344423-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5513241)									
ES2343853-007	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2344423-006	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5513241)									
ES2343853-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2344423-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5517182)									
ES2343854-005	QC300_20231212 NULL	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5517182) - continued									
ES2343854-005	QC300_20231212 NULL	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2344426-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515695)									
ES2343854-005	QC300_20231212 NULL	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2344048-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5512505)									
ES2343985-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	0.71	0.85	18.4	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	0.77	0.70	9.3	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	14.0	13.7	2.0	0% - 20%
ES2343985-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	0.19	0.19	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	0.10	0.09	12.3	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	13.6	13.8	1.3	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5512505)									
ES2343985-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	3.04	3.09	1.5	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	2.26	2.28	1.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	5.11	5.32	4.1	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	0.75	0.77	2.5	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	<0.2	<0.2	0.0	No Limit
ES2343985-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	0.26	0.33	23.3	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	2.31	2.19	5.2	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	4.74	4.71	0.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	0.40	0.39	3.7	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5512505)									
ES2343985-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	1.10	1.08	1.4	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.06	0.07	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5512505) - continued									
ES2343985-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2343985-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5512185)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	103	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	98.5	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	120	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	104	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	92.0	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.8	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5518321)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	103	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	112	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	122	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	106	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	107	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5512186)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	92.5	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5518322)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	99.0	70.0	125
EP074D: Fumigants (QCLot: 5517462)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	95.9	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	94.7	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	92.9	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	108	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5517462)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	97.3	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	98.0	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	87.5	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	97.0	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5517462) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	90.6	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	86.4	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	88.2	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	92.0	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	106	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	101	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	103	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	96.8	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	101	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	98.8	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	108	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	109	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	116	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	88.7	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	90.7	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	94.7	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	99.1	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	86.0	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.6	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	110	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5517462)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	99.0	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.8	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	97.6	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	95.7	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.2	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	96.8	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	98.4	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	101	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5517462)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	101	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	93.9	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	101	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	89.5	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5510153)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	102	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	96.2	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	83.6	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	98.7	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	99.3	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	101	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	88.8	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.3	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	50.7	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5510153)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	97.7	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	105	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	104	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	110	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	93.5	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.8	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5510153) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	99.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510154)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	98.8	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	105	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	81.6	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5517461)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	87.9	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510154)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	106	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	105	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	110	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	79.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5517461)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.3	72.4	133
EP080: BTEXN (QCLot: 5513789)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	78.8	122
EP080: BTEXN (QCLot: 5517461)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	102	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.1	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.7	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.4	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.0	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.2	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5513241)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5513241) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.0	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.1	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5513241)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	92.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5513241)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	102	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	126	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5517182)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.4	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.5	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515695)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.7	77.0	111
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5512505)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	90.3	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	83.5	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5512505)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	94.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.3	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5512505) - continued								
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	98.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.3	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5512505)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	92.6	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	93.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	79.0	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5512185)							
ES2343853-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	91.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	86.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.2	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.6	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5518321)							
ES2343854-013	A-BH03_0.7-0.8	EG005T: Arsenic	7440-38-2	50 mg/kg	126	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	129	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	131	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	128	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	129	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	129	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	132	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5512186)							
ES2343853-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	76.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5518322)							
ES2343854-013	A-BH03_0.7-0.8	EG035T: Mercury	7439-97-6	5 mg/kg	121	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074E: Halogenated Aliphatic Compounds (QCLot: 5517462)							
ES2344576-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	83.7	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	80.0	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5517462)							
ES2344576-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5510153)							
ES2343853-007	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	114	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	114	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	114	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	100	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	83.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5510153)							
ES2343853-007	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5510154)							
ES2343853-007	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	78.6	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	78.4	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	88.8	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5517461)							
ES2344576-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	86.4	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5510154)							
ES2343853-007	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	73.0	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	77.1	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	87.3	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	78.3	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5517461)							
ES2344576-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.1	61.1	142
EP080: BTEXN (QCLot: 5513789)							
ES2344222-014	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	94.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.3	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.7	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.2	70.7	121

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 5513789) - continued							
ES2344222-014	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	96.1	61.1	115
EP080: BTEXN (QCLot: 5517461)							
ES2344576-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	89.7	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	87.0	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.1	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.2	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.5	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.0	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5513241)							
ES2343853-007	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	80.0	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	88.3	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	82.4	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5513241)							
ES2343853-007	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	88.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	99.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	90.6	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	96.5	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5513241)							
ES2343853-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	80.1	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	88.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	109	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	105	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5517182)							
ES2344345-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.6	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	102	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	99.0	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.7	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515695)							
ES2343985-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.3	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5512505)							
ES2343985-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	92.8	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	93.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5512505)							
ES2343985-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	103	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	108	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	110	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	94.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5512505)							
ES2343985-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	103	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	103	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	114	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	78.9	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2343854**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 28
Order number	: 60709736	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2343985--001	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074D: Fumigants						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8	28-Dec-2023	20-Dec-2023	8	28-Dec-2023	20-Dec-2023	8
Soil Glass Jar - Unpreserved						
A-BH03_2.0-2.1	28-Dec-2023	20-Dec-2023	8	29-Dec-2023	20-Dec-2023	9
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8	28-Dec-2023	20-Dec-2023	8	28-Dec-2023	20-Dec-2023	8
Soil Glass Jar - Unpreserved						
A-BH03_2.0-2.1	28-Dec-2023	20-Dec-2023	8	29-Dec-2023	20-Dec-2023	9
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8	28-Dec-2023	20-Dec-2023	8	28-Dec-2023	20-Dec-2023	8
Soil Glass Jar - Unpreserved						
A-BH03_2.0-2.1	28-Dec-2023	20-Dec-2023	8	29-Dec-2023	20-Dec-2023	9
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8	28-Dec-2023	20-Dec-2023	8	28-Dec-2023	20-Dec-2023	8
Soil Glass Jar - Unpreserved						
A-BH03_2.0-2.1	28-Dec-2023	20-Dec-2023	8	29-Dec-2023	20-Dec-2023	9
EP075(SIM)A: Phenolic Compounds						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8, A-BH03_2.0-2.1	28-Dec-2023	27-Dec-2023	1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8, A-BH03_2.0-2.1	28-Dec-2023	27-Dec-2023	1	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
A-BH03_0.7-0.8	28-Dec-2023	27-Dec-2023	1	28-Dec-2023	27-Dec-2023	1

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved A-BH03_0.7-0.8, A-BH03_2.0-2.1	28-Dec-2023	27-Dec-2023	1	29-Dec-2023	27-Dec-2023	2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved A-BH03_0.7-0.8	28-Dec-2023	27-Dec-2023	1	28-Dec-2023	27-Dec-2023	1
Soil Glass Jar - Unpreserved A-BH03_0.7-0.8, A-BH03_2.0-2.1	28-Dec-2023	27-Dec-2023	1	29-Dec-2023	27-Dec-2023	2
EP080: BTEXN						
Soil Glass Jar - Unpreserved A-BH03_0.7-0.8	28-Dec-2023	27-Dec-2023	1	28-Dec-2023	27-Dec-2023	1
Soil Glass Jar - Unpreserved A-BH03_2.0-2.1	28-Dec-2023	27-Dec-2023	1	29-Dec-2023	27-Dec-2023	2

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) R-BH30_0.0-0.2	**12-Dec-2023**	**----**	----	----	**22-Dec-2023**	26-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055) ACM-TP09_0.035-0.1, A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**----**	----	----	**22-Dec-2023**	27-Dec-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH30_0.0-0.2	**12-Dec-2023**	**----**	----	----	**22-Dec-2023**	09-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM-TP09_0.035-0.1	**13-Dec-2023**	**----**	----	----	**22-Dec-2023**	10-Jun-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) R-BH30_0.0-0.2	**12-Dec-2023**	**22-Dec-2023**	09-Jun-2024	✓	**24-Dec-2023**	09-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T) ACM-TP09_0.035-0.1	**13-Dec-2023**	**22-Dec-2023**	10-Jun-2024	✓	**24-Dec-2023**	10-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	10-Jun-2024	✓	**29-Dec-2023**	10-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) R-BH30_0.0-0.2	**12-Dec-2023**	**22-Dec-2023**	09-Jan-2024	✓	**27-Dec-2023**	09-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T) ACM-TP09_0.035-0.1	**13-Dec-2023**	**22-Dec-2023**	10-Jan-2024	✓	**27-Dec-2023**	10-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	10-Jan-2024	✓	**02-Jan-2024**	10-Jan-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**28-Dec-2023**	20-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**29-Dec-2023**	20-Dec-2023	×
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**28-Dec-2023**	20-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**29-Dec-2023**	20-Dec-2023	×
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**28-Dec-2023**	20-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**29-Dec-2023**	20-Dec-2023	×
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**28-Dec-2023**	20-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	20-Dec-2023	×	**29-Dec-2023**	20-Dec-2023	×
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**28-Dec-2023**	06-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**28-Dec-2023**	06-Feb-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**28-Dec-2023**	27-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	27-Dec-2023	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**28-Dec-2023**	27-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	27-Dec-2023	×
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL, Trip Spike - 7, Trip Spike Control - 7	**11-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH03_0.7-0.8	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**28-Dec-2023**	27-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) A-BH03_2.0-2.1	**13-Dec-2023**	**28-Dec-2023**	27-Dec-2023	×	**29-Dec-2023**	27-Dec-2023	×
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**27-Dec-2023**	10-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**27-Dec-2023**	10-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**27-Dec-2023**	10-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) A-BH03_0.7-0.8, A-BH03_2.0-2.1	**13-Dec-2023**	**27-Dec-2023**	10-Jun-2024	✓	**03-Jan-2024**	05-Feb-2024	✓

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM-1 - NULL, ACM-2 - NULL	**12-Dec-2023**	**----**	----	----	**22-Dec-2023**	09-Jun-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20231212 - NULL	**12-Dec-2023**	**28-Dec-2023**	09-Jun-2024	✓	**28-Dec-2023**	09-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20231212 - NULL	**12-Dec-2023**	**----**	----	----	**29-Dec-2023**	09-Jan-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20231212 - NULL	**12-Dec-2023**	**22-Dec-2023**	09-Jun-2024	✓	**28-Dec-2023**	09-Jun-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20231212 - NULL	**12-Dec-2023**	**22-Dec-2023**	09-Jun-2024	✓	**28-Dec-2023**	09-Jun-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20231212 - NULL	**12-Dec-2023**	**22-Dec-2023**	09-Jun-2024	✓	**28-Dec-2023**	09-Jun-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC300_20231212 - NULL	**12-Dec-2023**	**22-Dec-2023**	09-Jun-2024	✓	**28-Dec-2023**	09-Jun-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2343854**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 14-Dec-2023 19:00	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 04-Jan-2024	Scheduled Reporting Date	: **04-Jan-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 16.4'C, 17.2'C, 15.9'C - Ice Bricks present
Receipt Detail	: Large esky	No. of samples received / analysed	: 28 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the addition of analysis as per updated COC.
- **MIS-SOL: Coal tar analysis to be conducted by Envirolab.**
- **Asbestos analysis cannot be done for sample 12 'A-BH03_0.0-0.2' as not bag was received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2343854-005 : [12-Dec-2023] : QC300_20231212 - NULL
ES2343854-026 : [11-Dec-2023] : Trip Spike Control - 7
ES2343854-028 : [11-Dec-2023] : Trip Spike Control - 8

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-02 8 Metals (incl. Digestion)
ES2343854-001	12-Dec-2023 00:00	R-BH30_0.0-0.2		✓	✓		✓
ES2343854-002	12-Dec-2023 00:00	R-BH30_0.5-0.6	✓				
ES2343854-003	12-Dec-2023 00:00	R-BH30_0.0-1.0	✓				
ES2343854-004	12-Dec-2023 00:00	R-BH30_1.0-2.0	✓				
ES2343854-006	13-Dec-2023 00:00	ACM-TP09_0.00-0.035				✓	
ES2343854-007	13-Dec-2023 00:00	ACM-TP09_0.035-0.1		✓	✓		✓
ES2343854-008	13-Dec-2023 00:00	ACM-TP09_0.33-0.5	✓				
ES2343854-009	13-Dec-2023 00:00	ACM-TP09_0.5-1.5	✓				
ES2343854-010	13-Dec-2023 00:00	ACM-TP09_1.5-2.2	✓				
ES2343854-011	13-Dec-2023 00:00	ACM-TP09_2.5-3	✓				
ES2343854-012	13-Dec-2023 00:00	A-BH03_0.0-0.2	✓				
ES2343854-013	13-Dec-2023 00:00	A-BH03_0.7-0.8		✓			
ES2343854-014	13-Dec-2023 00:00	A-BH03_2.0-2.1		✓			
ES2343854-015	13-Dec-2023 00:00	R-TP05-0-0.04				✓	
ES2343854-016	13-Dec-2023 00:00	R-TP05-0.04-0.1	✓				
ES2343854-017	13-Dec-2023 00:00	R-TP05-0.2-0.4	✓				
ES2343854-018	13-Dec-2023 00:00	R-TP05-0.8-1.0	✓				
ES2343854-019	13-Dec-2023 00:00	R-TP05-1.1-1.3	✓				
ES2343854-020	13-Dec-2023 00:00	R-TP05-1.5-1.7	✓				
ES2343854-021	13-Dec-2023 00:00	R-TP05-2.3-2.5	✓				
ES2343854-027	11-Dec-2023 00:00	Trip Spike 8	✓				
ES2343854-028	11-Dec-2023 00:00	Trip Spike Control 8	✓				

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP080 BTEXN	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2343854-013	13-Dec-2023 00:00	A-BH03_0.7-0.8	✓		✓		✓
ES2343854-014	13-Dec-2023 00:00	A-BH03_2.0-2.1	✓		✓		✓
ES2343854-022	11-Dec-2023 00:00	Trip Blank NULL				✓	
ES2343854-023	11-Dec-2023 00:00	Trip Spike 7		✓			
ES2343854-026	11-Dec-2023 00:00	Trip Spike Control 7		✓			

Matrix: **SOLID**

Laboratory sample ID	Sampling date / time	Sample ID	SOLID - EA200B Asbestos Identification in Bulk Solids (Excluding
ES2343854-024	12-Dec-2023 00:00	ACM-1 NULL	✓
ES2343854-025	12-Dec-2023 00:00	ACM-2 NULL	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - W-02T 8 metals (Total)
ES2343854-005	12-Dec-2023 00:00	QC300_20231212 NULL	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP074: Volatile Organic Compounds							
A-BH03_0.7-0.8	Soil Glass Jar - Unpreserved	20-Dec-2023	20-Dec-2023	14-Dec-2023	✓	21-Dec-2023	✘
A-BH03_2.0-2.1	Soil Glass Jar - Unpreserved	20-Dec-2023	20-Dec-2023	14-Dec-2023	✓	21-Dec-2023	✘

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Attachment - Report (SUBCO)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

STEPHEN RANDALL

- *AU Certificate of Analysis - NATA (COA)	Email	Stephen.Randall@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Stephen.Randall@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Stephen.Randall@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Stephen.Randall@aecom.com
- Attachment - Report (SUBCO)	Email	Stephen.Randall@aecom.com
- Chain of Custody (CoC) (COC)	Email	Stephen.Randall@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Stephen.Randall@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE: 420 George St Syd.	SAMPLER: David Aoun / Alex To	Destination Laboratory
PROJECT MANAGER (PM):	SITE: WYONG	MOBILE: 0466 246 847	PHONE: ALS
PROJECT NUMBER & TASK CODE: 60709736	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	HOLD
1	R-BH30_0.0-0.2_20231212	Soil	12/12/23		Jar	2	X
2	R-BH30_0.0-0.2_20231212	Soil	12/12/23		Bag	1	
3	R-BH30_0.5-0.6_20231212	Soil	12/12/23		Jar	2	
4	R-BH30_0.5-0.6_20231212	Soil	12/12/23		Bag	1	
5	R-BH30_0.0-1.0_20231212	Soil	12/12/23		Bag (ASS)	1	
6	R-BH30_1.0-2.0_20231212	Soil	12/12/23		Bag (ASS)	1	
7	QC300_231212	Liquid	12/12/23	17:00	Jar	3	
8	A-BH03_0.0-0.2	S	13/12/23	AM	J+ZLB+PJ	1,1,1	
9	-0.7-0.8						
10	-2.0-2.1						
11	QC300-20231213	W			V, P, A 608.11		
12	ACM-TP09-0.00-0.035 20231213	Soil	13/12/23		Jar	1	
13	ACM-TP09-0-0.035 20231213	Soil	13/12/23		Bag	1	
14	ACM-TP09-0.035-0.1 231213	Soil	13/12/23		Jar	1	
15	ACM-TP09-0.35-0.1 231213	Soil	13/12/23		Bag	1	
16	ACM-TP09-0.33-0.5 231213	Soil	13/12/23		Jar	1	
17	ACM-TP09-0.33-0.5 231213	Soil	13/12/23		Bag	1	
18	ACM-TP09-0.5-1.2 231213	Soil	13/12/23		Jar	1	
19	ACM-TP09-0.5-1.2 231213	Soil	13/12/23		Bag	1	
20	ACM-TP09-1.5-2.2 231213	Soil	13/12/23		Jar	1	
21	ACM-TP09-1.5-2.2 231213	Soil	13/12/23		Bag	1	

Environmental Division
Sydney
Work Order Reference
ES2343854

Telephone : + 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name:	Date:	Name: SOSEFINA AS	Date: 14/12/23	Consignment Note No:
Of:	Time:	Of:	Time:	Of:	Time: 1900	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

PJ= PFAS JAR

COC Page 1 of

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE: 420 George ST	SAMPLER: Alex To	Destination Laboratory
PROJECT MANAGER (PM):	SITE: NYONG TOWN JCENTRE	MOBILE: 0450 638 364 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	
22	ACM-TP09-2.5-3-231213	Soil	13/12/23		Jar	1	
23	ACM-TP09-2.5-3-231213	Soil	13/12/23		Bag	1	
24	R-TP05-0-0.4-231213	Soil	13/12/23		Jar	2	
25	R-TP05-0-0.4-231213	Soil	13/12/23		Bag	1	
26	R-TP05-0.4-0.1-231213	Soil	13/12/23		Jar	2	
27	R-TP05-0.2-0.4-231213	Soil	13/12/23		Jar	2	
28	R-TP05-0.4-0.1-231213	Soil	13/12/23		Bag	1	
29	R-TP05-0.2-0.4-231213	Soil	13/12/23		Bag	1	
30	R-TP05-0.8-1-231213	Soil	13/12/23		Jar	2	
31	R-TP05-0.8-1-231213	Soil	13/12/23		Bag	1	
32	R-TP05-1.1-1.3-231213	Soil	13/12/23		Jar	2	
33	R-TP05-1.1-1.3-231213	Soil	13/12/23		Bag	1	
34	R-TP05-1.5-1.7-231213	Soil	13/12/23		Jar	2	
35	R-TP05-1.5-1.7-231213	Soil	13/12/23		Bag	1	
36	R-TP05-2.3-2.5-231213	Soil	13/12/23		Jar	2	
37	R-TP05-2.3-2.5-231213	Soil	13/12/23		Bag	1	

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name:	Date:	Name: Sarah Hughes AS	Date: 14/12/23	Con Note No:
Of:	Time:	Of:	Time:	Of:	Time: 1900	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE:
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com, stephen.randall@aecom.com	
RESULTS REQUIRED (Date): 5 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to ensure suite prices)	

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material ([ERM Guideline]; Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	OC, OP, PCB	Metals	OC+Cp - BTEXN	Phenols	VOCs	PFAS (short suite)	OHCs	Coal Tar	Asbestos Analysis in Material	HOLD	Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	R-BH30_0.0-0.2	S	12/12/23	-	Jar, Ziplock bag	2 , 1		X				X									
2	R-BH30_0.5-0.6	S	12/12/23	-	Jar, Ziplock bag	2 , 1														X	
3	R-BH30_0.6-1.0	S	12/12/23	-	Bulk bag	1														X	
4	R-BH30_1.0-2.0	S	12/12/23	-	Bulk bag	1														X	
5	QC300_20231212	W	12/12/23	-	AG , P , V	1 ,1, 2						X									
6	ACM-TP09_0.00-0.035	S	13/12/23	-	Jar, Ziplock bag	1 ,1												X			
7	ACM-TP09_0.035-0.1	S	13/12/23	-	Jar, Ziplock bag	1 ,1		X				X									
8	ACM-TP09_0.33-0.5	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
9	ACM-TP09_0.5-1.2	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
10	ACM-TP09_1.5-2.2	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
11	ACM-TP09_2.5-3	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
12	A-BH08_0.0-0.2	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1		X													
13	A-BH08_0.7-0.8	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X				
14	A-BH08_2.0-2.1	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X				
15	R-TP05-0-0.01	S	13/12/23	-	Jar, Ziplock bag	2 , 1												X			
16	R-TP05-0.01-0.1	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
17	R-TP05-0.3-0.4	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
18	R-TP05-0.8-1.0	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
19	R-TP05-1.1-1.3	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
20	R-TP05-1.5-1.7	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
21	R-TP05-2.3-2.5	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
22	Trip Blank/ Trip Spike 7,23	S	lab prepared		Jar	1							X								
6	5 QC300_20231212	W	12/12/23	-	AG , P , V, PFAS bottle	1 ,1, 2, 2						X				X					
24	ACM-1	Material	12/12/23	-	Ziplock bag	1													X		
25	ACM-2	Material	12/12/23	-	Ziplock bag	1													X		

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 20/12/23	Name:	Date:	Name: Thanh Le	Date: 21/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: ALS	Time: 1145	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar. Soil Container Codes: Jar = Unpreserved glass jar

Environmental Division Sydney

Work Order Reference

ES2343854

26 TSC 7

27 TSS

28 TSC S

COC Page 1

Telephone : +61-2-8784 8555

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 665 PHONE:	
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiademan@aecom.com, stephen.randall@aecom.com	
RESULTS REQUIRED (Date): 5 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (or dis accompanied)
Intact: Yes No N/A
SAMPLE TEMPERATURE:
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Jars / Code	Total bottles	Foreign Material (ENAM Guideline) Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	OC, DP, PCB	Metals	OS-C9 : BTEXN	Phenols	VOCs	PFAS (short suite)	CHCs	Coal Tar	Asbestos Analysis in Material	HOLD	Notes e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	RJB-30_0.0-0.2	S	12/12/23	-	Jar, Ziplock bag	2 , 1		X				X									
2	RJB-30_0.5-0.6	S	12/12/23	-	Jar, Ziplock bag	2 , 1														X	
3	RJB-30_0.8-1.0	S	12/12/23	-	Bulk bag	1														X	
4	RJB-30_1.0-2.0	S	12/12/23	-	Bulk bag	1														X	
5	QC300_20231212	W	12/12/23	-	AG , P , V	1 ,1, 2						X									
6	ACM-TP09_0.00-0.035	S	13/12/23	-	Jar, Ziplock bag	1 ,1												X			
7	ACM-TP09_0.035-0.1	S	13/12/23	-	Jar, Ziplock bag	1 ,1		X				X									
8	ACM-TP09_0.53-0.5	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
9	ACM-TP09_0.5-1.2	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
10	ACM-TP09_1.5-2.2	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
11	ACM-TP09_2.5-3	S	13/12/23	-	Jar, Ziplock bag	1 ,1														X	
12	A-B-03_0.0-0.2	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1, 1		X													
13	A-B-03_0.7-0.8	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1, 1				X				X		X	X				
14	A-B-03_2.0-2.1	S	13/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1, 1				X				X		X	X				
15	R-TP05-0-0.01	S	13/12/23	-	Jar, Ziplock bag	2 , 1												X			
16	R-TP05-0.01-0.1	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
17	R-TP05-0.2-0.4	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
18	R-TP05-0.8-1.0	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
19	R-TP05-1.1-1.3	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
20	R-TP05-1.5-1.7	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
21	R-TP05-2.3-2.5	S	13/12/23	-	Jar, Ziplock bag	2 , 1														X	
22	Trip Blank/ Trip Spike 723	S	lab prepared		Jar	1							X								
23	QC300_20231212	W	12/12/23	-	AG , P , V, PFAS bottle	1 ,1, 2, 2						X				X					
24	ACM-1	Material	12/12/23	-	Ziplock bag	1													X		
25	ACM-2	Material	12/12/23	-	Ziplock bag	1													X		

Subcon / Forward Lab / Split WO:
Lab / Analysis: Newcastle - Asbestos
Organised By / Date: Enviro Lab - Coal Tar
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 20/12/23	Name:	Date:	Name: Thanh Le	Date: 21/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: AES	Time: 11:45	Transport Co:

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl preserved Plastic, HS = HCl preserved Speciation bottle, SP = Sulfuric Preserved Plastic
F = Formaldehyde Preserved Glass, Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottle, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag. PF = PFAS Jar. Soil Container Codes: Jar = Unpreserved glass jar

Environmental Division Sydney
Work Order Reference
ES2343854

26 TSC 7
27 TSS
28 TSC 8

COC Page 1

Telephone : + 61-2-8784 8555

CERTIFICATE OF ANALYSIS

Work Order	: **ES2344222**	Page	: 1 of 25
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023 15:40
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:48
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 20		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080/EP074: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 010-012, 017-019. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	4.6	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.2	12.8	----	6.5	9.6
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	28	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.58	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	No	No
Asbestos Type	1332-21-4	-	--	-	----	----	-	-
Asbestos (Trace)	1332-21-4	-	-	No	----	----	No	No
Sample weight (dry)	----	0.01	g	381	----	----	453	482
Synthetic Mineral Fibre	----	-	--	No	----	----	No	No
Organic Fibre	----	-	--	No	----	----	No	No
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	----	B.SCHRADER	B.SCHRADER
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	<0.0004	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	<0.001	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	<0.1	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	<0.01	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.381	----	----	0.453	0.482
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	<0.0004	<0.0004
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.7	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.9	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
				Result	Result	Result	Result	Result
ED007: Exchangeable Cations - Continued								
Exchangeable Sodium	----	0.1	meq/100g	----	----	**0.2**	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	**2.3**	----	----
Exchangeable Sodium Percent	----	0.1	%	----	----	**9.4**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg	**14**	**17**	----	**11**	**13**
Copper	7440-50-8	5	mg/kg	**14**	**10**	----	**9**	**13**
Lead	7439-92-1	5	mg/kg	**90**	**16**	----	**16**	**13**
Nickel	7440-02-0	2	mg/kg	**4**	**4**	----	**8**	**15**
Zinc	7440-66-6	5	mg/kg	**68**	**25**	----	**24**	**25**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**0.5**	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	**0.6**	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	**1.1**	----	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**102**	**95.6**	----	**96.8**	**86.9**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**88.4**	**79.5**	----	**75.4**	**79.9**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**92.6**	**59.2**	----	**53.3**	**50.3**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**83.2**	**93.8**	----	**81.3**	**82.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		**91.2**	**105**	----	**89.7**	**89.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**79.4**	**98.4**	----	**82.8**	**83.8**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**95.3**	**108**	----	**93.1**	**93.6**
Anthracene-d10	1719-06-8	0.5	%		**109**	**125**	----	**108**	**109**
4-Terphenyl-d14	1718-51-0	0.5	%		**109**	**124**	----	**109**	**109**
EP080S: TPH(V)/BTEX Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP13_0.0-0.2	ACM_TP13_0.9-1.0	ACM_TP13_1.9-2.0	ACM_TP17_0.0-0.2	ACM_TP17_0.9-1.0
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-001	ES2344222-002	ES2344222-003	ES2344222-005	ES2344222-006
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**91.2**	**96.7**	**----**	**95.4**	**94.1**
Toluene-D8	2037-26-5	0.2	%		**102**	**110**	**----**	**101**	**106**
4-Bromofluorobenzene	460-00-4	0.2	%		**114**	**121**	**----**	**115**	**115**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	33.5	----	11.8	24.0	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	No
Asbestos Type	1332-21-4	-	--	----	-	----	----	-
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	No
Sample weight (dry)	----	0.01	g	----	506	----	----	523
Synthetic Mineral Fibre	----	-	--	----	No	----	----	No
Organic Fibre	----	-	--	----	No	----	----	No
APPROVED IDENTIFIER:	----	-	--	----	B.SCHRADER	----	----	B.SCHRADER
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	<0.0004	----	----	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	<0.001	----	----	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	----	<0.1	----	----	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	<0.01	----	----	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	----	0.506	----	----	0.523
ø Fibrous Asbestos >7mm	----	0.0004	g	----	<0.0004	----	----	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	7	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	18	----	14	27	----
Copper	7440-50-8	5	mg/kg	20	----	23	19	----
Lead	7439-92-1	5	mg/kg	20	----	17	19	----
Nickel	7440-02-0	2	mg/kg	9	----	48	11	----
Zinc	7440-66-6	5	mg/kg	26	----	97	34	----
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
				Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	<0.1	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	----	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	----	----	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	----	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	----	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	----	----	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	----	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	<0.5	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	**0.7**	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	**2.7**	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	**3.7**	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	----	**3.0**	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	**1.6**	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	----	**1.7**	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	**1.9**	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	**0.7**	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	**1.3**	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	**0.6**	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	**0.7**	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	----	**18.6**	<0.5	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	----	**1.8**	<0.5	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	----	**2.0**	**0.6**	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	----	**2.3**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	<100	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	<10	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	----	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	<50	<50	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	----	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	<0.5	----
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	<0.2	<0.2	----
^ **Total Xylenes**	----	0.5	mg/kg		----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	**0.0002**	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	<0.0002	**0.0003**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	<0.0005	<0.0005	----
EP231P: PFAS Sums								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	**0.0002**	<0.0002	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	----	----	**0.0002**	**0.0003**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	----	----	**86.9**	**85.4**	----
Toluene-D8	2037-26-5	0.5	%	----	----	**87.8**	**77.2**	----
4-Bromofluorobenzene	460-00-4	0.5	%	----	----	**86.7**	**85.8**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP17_1.6-1.7	R_BH36_0.0-0.2	R_BH36_0.5-0.6	R_BH36_1.0-1.1	ACM_BH12_0.0-0.2
				Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	17-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344222-007	ES2344222-013	ES2344222-014	ES2344222-015	ES2344222-016
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	81.3	78.4	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	90.9	85.7	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	85.3	83.0	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	93.4	86.6	----
Anthracene-d10	1719-06-8	0.5	%		----	----	108	101	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	107	98.2	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	82.5	76.8	----
Toluene-D8	2037-26-5	0.2	%		----	----	83.0	77.1	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	75.9	76.6	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	----	95.2	94.2	----
13C8-PFOA	----	0.0002	%		----	----	95.2	98.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Spike NULL	Trip Blank NULL	Trip Control Spike	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344222-018	ES2344222-019	ES2344222-020	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		4.0	<0.5	5.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		5.2	<0.5	7.1	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		5.7	<0.5	7.7	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		2.4	<0.5	3.2	----	----
^ Sum of BTEX	----	0.2	mg/kg		17.3	<0.2	23.5	----	----
^ Total Xylenes	----	0.5	mg/kg		8.1	<0.5	10.9	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		86.0	90.8	87.9	----	----
Toluene-D8	2037-26-5	0.2	%		95.4	114	107	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		114	131	122	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231218 NULL	----	----	----	----
				Sampling date / time	17-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344222-017	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231218 NULL	----	----	----	----
				Sampling date / time	17-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344222-017	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231218 NULL	----	----	----	----
				Sampling date / time	17-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344222-017	--------	--------	--------	--------
					Result	----	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		**8**	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231218 NULL	----	----	----	----
				Sampling date / time	17-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344222-017	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**106**	----	----	----	----
Toluene-D8	2037-26-5	5	%		**99.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		**101**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231218 NULL	----	----	----	----
				Sampling date / time	17-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344222-017	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	1.0	%		**24.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**50.8**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**43.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**62.3**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**69.6**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**69.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**86.1**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**106**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**117**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM_TP13_0.0-0.2 - 18-Dec-2023 00:00	A soil sample.
EA200: Description	ACM_TP17_0.0-0.2 - 18-Dec-2023 00:00	A soil sample.
EA200: Description	ACM_TP17_0.9-1.0 - 18-Dec-2023 00:00	A soil sample.
EA200: Description	R_BH36_0.0-0.2 - 18-Dec-2023 00:00	A soil sample.
EA200: Description	ACM_BH12_0.0-0.2 - 15-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)T: PAH Surrogates - Continued			
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

QUALITY CONTROL REPORT

Work Order	: **ES2344222**	Page	: 1 of 28
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 20		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515158)									
ES2344222-007	ACM_TP17_1.6-1.7	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	16	12.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	18	10.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	29	35.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	34	25.9	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515530)									
ES2344222-001	ACM_TP13_0.0-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	14	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	18	26.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	90	109	19.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	68	88	25.2	0% - 50%
ES2344707-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	17	19.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	17	13	27.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	<5	50.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	14	30.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	44	34	25.4	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515530) - continued									
ES2344707-006	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	41	51	21.4	0% - 50%
EA002: pH 1:5 (Soils) (QC Lot: 5513538)									
ES2344222-003	ACM_TP13_1.9-2.0	EA002: pH Value	----	0.1	pH Unit	4.6	4.7	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5515162)									
ES2344617-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	9.2	10.2	9.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5515532)									
ES2344222-005	ACM_TP17_0.0-0.2	EA055: Moisture Content	----	0.1 (1.0)*	%	6.5	6.9	5.5	No Limit
ED007: Exchangeable Cations (QC Lot: 5524271)									
ES2344222-003	ACM_TP13_1.9-2.0	ED007: Exchangeable Sodium Percent	----	0.1	%	9.4	9.4	0.0	0% - 20%
		ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.7	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.9	0.9	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.3	2.3	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515159)									
ES2344222-007	ACM_TP17_1.6-1.7	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515531)									
ES2344222-001	ACM_TP13_0.0-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344707-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5513518)									
ES2344222-001	ACM_TP13_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513517)									
ES2344222-001	ACM_TP13_0.0-0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513517) - continued									
ES2344222-001	ACM_TP13_0.0-0.2	EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5513517)									
ES2344222-001	ACM_TP13_0.0-0.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5513790)									
ES2344222-014	R_BH36_0.5-0.6	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5515257)									
ES2344222-015	R_BH36_1.0-1.1	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5515257) - continued									
ES2344222-015	R_BH36_1.0-1.1	EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5513790)									
ES2344222-014	R_BH36_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5515257)									
ES2344222-015	R_BH36_1.0-1.1	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5515257) - continued									
ES2344222-015	R_BH36_1.0-1.1	EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5513790)									
ES2344222-014	R_BH36_0.5-0.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5515257)									
ES2344222-015	R_BH36_1.0-1.1	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5515257) - continued									
ES2344222-015	R_BH36_1.0-1.1	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5513790)									
ES2344222-014	R_BH36_0.5-0.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5515257)									
ES2344222-015	R_BH36_1.0-1.1	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513516)									
ES2344222-001	ACM_TP13_0.0-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513516)									
ES2344222-001	ACM_TP13_0.0-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513516) - continued									
ES2344222-001	ACM_TP13_0.0-0.2	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513515)									
ES2344222-001	ACM_TP13_0.0-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	R_BH36_0.5-0.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5515258)									
ES2344222-015	R_BH36_1.0-1.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5515261)									
ES2344222-001	ACM_TP13_0.0-0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513515)									
ES2344222-001	ACM_TP13_0.0-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2344222-014	R_BH36_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5515258)									
ES2344222-015	R_BH36_1.0-1.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5515261)									
ES2344222-001	ACM_TP13_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5513789)									
ES2344423-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5513789) - continued									
ES2344423-005	Anonymous	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2344222-014	R_BH36_0.5-0.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5515258)									
ES2344222-015	R_BH36_1.0-1.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5515261)									
ES2344222-001	ACM_TP13_0.0-0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5516321)									
ES2344222-014	R_BH36_0.5-0.6	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5516321)									
ES2344222-014	R_BH36_0.5-0.6	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5516321) - continued									
ES2344222-014	R_BH36_0.5-0.6	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5516321)									
ES2344222-014	R_BH36_0.5-0.6	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5514304)									
WN2315336-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.038	0.039	0.0	No Limit
WN2315304-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.009	26.2	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5514141)									
ES2343888-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP074D: Fumigants (QC Lot: 5513477)									
ES2344247-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5513477)									
ES2344247-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5513477) - continued									
ES2344247-001	Anonymous	EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5513477)									
ES2344247-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074G: Trihalomethanes (QC Lot: 5513477)									
ES2344247-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513478)									
ES2344247-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513478)									
ES2344247-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5513478)									
ES2344247-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515158)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	91.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	93.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	109	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	104	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	92.5	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	93.6	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	84.2	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515530)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	108	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	113	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	130	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	107	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	109	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	99.1	66.0	133
EA002: pH 1:5 (Soils) (QCLot: 5513538)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	98.8	101
ED007: Exchangeable Cations (QCLot: 5524271)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	104	75.8	120
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	103	74.9	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	120	80.0	120
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	107	80.0	120
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515159)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	96.6	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515531)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	109	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513518)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513518) - continued								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	105	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513517)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	83.2	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.7	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513517)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	85.1	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	76.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513517) - continued								
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	85.4	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	80.7	41.0	123
EP074D: Fumigants (QCLot: 5513790)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	100	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	101	63.0	115
EP074D: Fumigants (QCLot: 5515257)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	101	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	101	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	103	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513790)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	95.8	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	98.5	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	101	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	99.5	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	98.5	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	98.7	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	99.4	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	101	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	101	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	100	65.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513790) - continued								
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	99.2	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	97.8	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	100.0	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	99.7	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	101	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	100	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	96.9	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	99.2	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	99.2	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.4	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	99.0	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	95.0	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	110	50.0	128
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515257)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	101	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	102	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	97.9	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	103	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	100	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	99.9	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	96.8	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	85.9	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	101	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	101	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	100	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	99.8	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	103	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515257) - continued								
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	105	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	101	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	103	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	99.2	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	105	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	101	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	96.5	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	104	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5513790)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	100	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	101	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	105	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	105	52.0	122
EP074F: Halogenated Aromatic Compounds (QCLot: 5515257)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	101	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	103	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	103	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	105	52.0	122
EP074G: Trihalomethanes (QCLot: 5513790)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	107	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	98.8	61.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5513790) - continued								
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	98.7	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	96.5	60.0	126
EP074G: Trihalomethanes (QCLot: 5515257)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	104	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	101	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	99.4	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5513516)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	104	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	105	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	98.1	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	88.1	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	99.8	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	100	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	101	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.6	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.3	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	85.1	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	59.0	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513516)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.1	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.1	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	110	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	111	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	107	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	110	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	106	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	113	74.0	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513516) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	98.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	96.9	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	102	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513515)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	109	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	93.8	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.0	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	81.6	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515258)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.7	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515261)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.2	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5521401)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.9	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513515)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	110	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	93.8	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	89.6	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	79.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515258)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.7	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515261)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	82.5	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5521401)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.0	72.4	133
EP080: BTEXN (QCLot: 5513789)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	78.2	121

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 5513789) - continued								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.4	78.8	122
EP080: BTEXN (QCLot: 5515258)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	84.5	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	96.1	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	96.1	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.5	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	101	78.8	122
EP080: BTEXN (QCLot: 5515261)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.6	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.7	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	106	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	104	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.2	78.8	122
EP080: BTEXN (QCLot: 5521401)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	100	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	109	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5516321)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.4	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516321)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	71.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516321) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5516321)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	108	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	90.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	95.9	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	85.8	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5514304)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.2	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.5	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.0	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.7	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.4	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.8	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5514141)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.6	77.0	111
EP074D: Fumigants (QCLot: 5513477)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	100	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	104	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	104	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	108	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513477)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	83.9	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	87.8	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	86.0	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	91.1	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	97.1	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	95.6	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	102	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	79.9	70.2	128

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513477) - continued								
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	103	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	100.0	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	99.0	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	98.3	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	108	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	101	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	107	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	108	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	111	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.6	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	105	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	111	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	113	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	110	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	97.9	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	106	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	95.0	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5513477)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	104	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	102	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	102	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.6	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	102	67.0	123
EP074G: Trihalomethanes (QCLot: 5513477)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	106	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	102	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	100	65.0	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074G: Trihalomethanes (QCLot: 5513477) - continued								
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	101	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513487)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	73.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	67.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	67.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	66.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	71.0	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	72.8	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	74.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	73.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	70.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	80.3	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	83.8	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	66.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.6	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.9	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	69.1	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	69.3	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513478)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.8	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513488)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	56.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	78.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	90.9	58.3	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513478)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.4	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513488)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	60.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	86.2	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	95.9	50.5	115
EP080: BTEXN (QCLot: 5513478)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.8	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	103	73.5	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5513478) - continued								
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	100.0	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	107	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515158)							
ES2344222-007	ACM_TP17_1.6-1.7	EG005T: Arsenic	7440-38-2	50 mg/kg	90.5	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.9	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	91.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.3	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	91.8	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515530)							
ES2344222-001	ACM_TP13_0.0-0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	110	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	112	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	104	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	108	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	111	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515159)							
ES2344222-007	ACM_TP17_1.6-1.7	EG035T: Mercury	7439-97-6	5 mg/kg	87.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515531)							
ES2344222-001	ACM_TP13_0.0-0.2	EG035T: Mercury	7439-97-6	5 mg/kg	105	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513518)							
ES2344222-001	ACM_TP13_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.8	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513517)							
ES2344222-001	ACM_TP13_0.0-0.2	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	82.7	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513517) - continued							
ES2344222-001	ACM_TP13_0.0-0.2	EP068: Heptachlor	76-44-8	0.5 mg/kg	81.8	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	83.6	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	83.7	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	73.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	85.2	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513517)							
ES2344222-001	ACM_TP13_0.0-0.2	EP068: Diazinon	333-41-5	0.5 mg/kg	74.2	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.8	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	76.8	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	84.3	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	86.5	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513790)							
ES2344222-014	R_BH36_0.5-0.6	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	91.6	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	96.2	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515257)							
ES2344222-015	R_BH36_1.0-1.1	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	84.2	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	93.6	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5513790)							
ES2344222-014	R_BH36_0.5-0.6	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	83.7	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5515257)							
ES2344222-015	R_BH36_1.0-1.1	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	81.2	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513516)							
ES2344222-001	ACM_TP13_0.0-0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	105	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	106	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	85.5	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513516)							
ES2344222-001	ACM_TP13_0.0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513515)							
ES2344222-001	ACM_TP13_0.0-0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	113	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	119	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	122	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513789)							
ES2344222-014	R_BH36_0.5-0.6	EP080: C6 - C9 Fraction	----	32.5 mg/kg	79.6	60.4	142

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515258)							
ES2344222-015	R_BH36_1.0-1.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.8	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515261)							
ES2344222-001	ACM_TP13_0.0-0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.8	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513515)							
ES2344222-001	ACM_TP13_0.0-0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	118	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	124	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513789)							
ES2344222-014	R_BH36_0.5-0.6	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	78.3	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515258)							
ES2344222-015	R_BH36_1.0-1.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.1	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515261)							
ES2344222-001	ACM_TP13_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.8	61.1	142
EP080: BTEXN (QCLot: 5513789)							
ES2344222-014	R_BH36_0.5-0.6	EP080: Benzene	71-43-2	2.5 mg/kg	94.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.3	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.7	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	93.2	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	96.1	61.1	115
EP080: BTEXN (QCLot: 5515258)							
ES2344222-015	R_BH36_1.0-1.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.4	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.5	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	101	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	101	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.5	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	113	61.1	115
EP080: BTEXN (QCLot: 5515261)							
ES2344222-001	ACM_TP13_0.0-0.2	EP080: Benzene	71-43-2	2.5 mg/kg	97.1	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	95.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	109	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	104	70.7	121

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP080: BTEXN (QCLot: 5515261) - continued							
ES2344222-001	ACM_TP13_0.0-0.2	EP080: Naphthalene	91-20-3	2.5 mg/kg	94.4	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5516321)							
ES2344222-014	R_BH36_0.5-0.6	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	81.6	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	68.8	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	70.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516321)							
ES2344222-014	R_BH36_0.5-0.6	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	83.9	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	85.9	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	80.6	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	84.3	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	83.9	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5516321)							
ES2344222-014	R_BH36_0.5-0.6	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	87.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	76.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	88.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	90.6	69.2	143

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5514304)							
ES2344222-017	QC300_20231218 NULL	EG020A-T: Arsenic	7440-38-2	1 mg/L	101	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	102	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	105	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	103	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.7	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5514141)							
ES2344222-017	QC300_20231218 NULL	EG035T: Mercury	7439-97-6	0.01 mg/L	90.9	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513477)							
ES2344247-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	122	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	125	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5513477)							
ES2344247-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	105	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513478)							
ES2344247-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	112	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513478)							
ES2344247-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	107	70.0	130
EP080: BTEXN (QCLot: 5513478)							
ES2344247-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	111	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	113	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	119	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	103	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2344222**	Page	: 1 of 14
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 20
Order number	: 60709736	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074D: Fumigants						
Soil Glass Jar - Unpreserved						
R_BH36_1.0-1.1	27-Dec-2023	24-Dec-2023	3	28-Dec-2023	24-Dec-2023	4
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved						
R_BH36_1.0-1.1	27-Dec-2023	24-Dec-2023	3	28-Dec-2023	24-Dec-2023	4
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved						
R_BH36_1.0-1.1	27-Dec-2023	24-Dec-2023	3	28-Dec-2023	24-Dec-2023	4
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
R_BH36_1.0-1.1	27-Dec-2023	24-Dec-2023	3	28-Dec-2023	24-Dec-2023	4
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
Trip Blank - NULL	02-Jan-2024	29-Dec-2023	4	03-Jan-2024	29-Dec-2023	5
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
Trip Blank - NULL	02-Jan-2024	29-Dec-2023	4	03-Jan-2024	29-Dec-2023	5
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
Trip Spike - NULL	02-Jan-2024	29-Dec-2023	4	02-Jan-2024	29-Dec-2023	4
Soil Glass Jar - Unpreserved						
Trip Blank - NULL, Trip Control Spike	02-Jan-2024	29-Dec-2023	4	03-Jan-2024	29-Dec-2023	5

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count		Rate (%)		Quality Control Specification
		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
ACM_TP13_1.9-2.0	**18-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**22-Dec-2023**	22-Dec-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA055)							
ACM_TP17_1.6-1.7	**18-Dec-2023**	**----**	----	----	**27-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EA055)							
R_BH36_1.0-1.1	**17-Dec-2023**	**----**	----	----	**27-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**----**	----	----	**27-Dec-2023**	01-Jan-2024	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)							
ACM_TP13_1.9-2.0	**18-Dec-2023**	**----**	----	----	**28-Dec-2023**	15-Jun-2024	✓
EA152: Soil Particle Density							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA152)							
ACM_TP13_1.9-2.0	**18-Dec-2023**	**----**	----	----	**28-Dec-2023**	15-Jun-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM_BH12_0.0-0.2	**15-Dec-2023**	**----**	----	----	**27-Dec-2023**	12-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM_TP13_0.0-0.2, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.0-0.2	**18-Dec-2023**	**----**	----	----	**27-Dec-2023**	15-Jun-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
ACM_BH12_0.0-0.2	**15-Dec-2023**	**----**	----	----	**27-Dec-2023**	12-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
ACM_TP13_0.0-0.2, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.0-0.2	**18-Dec-2023**	**----**	----	----	**27-Dec-2023**	15-Jun-2024	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
ACM_TP13_1.9-2.0	**18-Dec-2023**	**03-Jan-2024**	15-Jan-2024	✓	**03-Jan-2024**	15-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Snap Lock Bag - Friable Asbestos/PSD Bag (EG005T)							
ACM_TP17_1.6-1.7	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**27-Dec-2023**	15-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)							
R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**27-Dec-2023**	14-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**27-Dec-2023**	15-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Snap Lock Bag - Friable Asbestos/PSD Bag (EG035T)							
ACM_TP17_1.6-1.7	**18-Dec-2023**	**27-Dec-2023**	15-Jan-2024	✓	**28-Dec-2023**	15-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jan-2024	✓	**28-Dec-2023**	14-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jan-2024	✓	**28-Dec-2023**	15-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	24-Dec-2023	×	**28-Dec-2023**	24-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074)							
R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	24-Dec-2023	×	**28-Dec-2023**	24-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074)							
R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	24-Dec-2023	×	**28-Dec-2023**	24-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	24-Dec-2023	×	**28-Dec-2023**	24-Dec-2023	×
Soil Glass Jar - Unpreserved (EP074) R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	25-Dec-2023	✓	**23-Dec-2023**	25-Dec-2023	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**27-Dec-2023**	05-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**27-Dec-2023**	05-Feb-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**15-Dec-2023**	**02-Jan-2024**	29-Dec-2023	×	**03-Jan-2024**	29-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**28-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	01-Jan-2024	✓	**23-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	01-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**15-Dec-2023**	**02-Jan-2024**	29-Dec-2023	×	**03-Jan-2024**	29-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**28-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	01-Jan-2024	✓	**23-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0, R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**27-Dec-2023**	05-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	01-Jan-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Trip Spike - NULL	**15-Dec-2023**	**02-Jan-2024**	29-Dec-2023	×	**02-Jan-2024**	29-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL, Trip Control Spike	**15-Dec-2023**	**02-Jan-2024**	29-Dec-2023	×	**03-Jan-2024**	29-Dec-2023	×
Soil Glass Jar - Unpreserved (EP080) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**28-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) R_BH36_0.5-0.6	**18-Dec-2023**	**22-Dec-2023**	01-Jan-2024	✓	**23-Dec-2023**	01-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_TP13_0.0-0.2, ACM_TP13_0.9-1.0, ACM_TP17_0.0-0.2, ACM_TP17_0.9-1.0	**18-Dec-2023**	**27-Dec-2023**	01-Jan-2024	✓	**28-Dec-2023**	01-Jan-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
HDPE Soil Jar (EP231X) R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
HDPE Soil Jar (EP231X) R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
HDPE Soil Jar (EP231X) R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) R_BH36_1.0-1.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓
HDPE Soil Jar (EP231X) R_BH36_0.5-0.6	**18-Dec-2023**	**27-Dec-2023**	15-Jun-2024	✓	**28-Dec-2023**	05-Feb-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231218 - NULL	**17-Dec-2023**	**23-Dec-2023**	14-Jun-2024	✓	**24-Dec-2023**	14-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231218 - NULL	**17-Dec-2023**	**----**	----	----	**28-Dec-2023**	14-Jan-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231218 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231218 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231218 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231218 - NULL	**17-Dec-2023**	**28-Dec-2023**	31-Dec-2023	✓	**29-Dec-2023**	31-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	19	**15.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	19	**15.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	28	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	28	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	28	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	9	**22.22**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	10.53	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	28	10.71	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	9	22.22	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Volatile Organic Compounds	EP074	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2344222**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 19-Dec-2023 15:40	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 29-Dec-2023	Scheduled Reporting Date	: **29-Dec-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 6.3'C, 8.3'C, 5.8'C - Ice present
Receipt Detail	: Large esky	No. of samples received / analysed	: 20 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- 02/01/2024: This is an updated SRN which indicates the addition of analysis to samples 'Trip Spike', 'Trip Blank' & 'Trip Control Spike' for this work order.
- **Sample ACM-BH12_0.5-0.6 forwarded to Eurofins**
- **Unable to conduct TRH/BTEX, PAH analysis on sample 7 as a glass soil jar was not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos & Clay Content analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Moisture Content : EA055		
ACM_TP17_1.6-1.7	- Snap Lock Bag - Friable Asbestos/PSD Bag	- Soil Glass Jar - Unpreserved
Total Mercury by FIMS : EG035T		
ACM_TP17_1.6-1.7	- Snap Lock Bag - Friable Asbestos/PSD Bag	- Soil Glass Jar - Unpreserved
Total Metals by ICP-AES : EG005T		
ACM_TP17_1.6-1.7	- Snap Lock Bag - Friable Asbestos/PSD Bag	- Soil Glass Jar - Unpreserved

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2344222-017 : [17-Dec-2023] : QC300_20231218 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150H-C Clay Content by Hydrometer	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) - Default	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2344222-001	18-Dec-2023 00:00	ACM_TP13_0.0-0.2			✓		✓		✓
ES2344222-002	18-Dec-2023 00:00	ACM_TP13_0.9-1.0			✓				✓
ES2344222-003	18-Dec-2023 00:00	ACM_TP13_1.9-2.0		✓		✓		✓	
ES2344222-004	18-Dec-2023 00:00	ACM_TP13_2.9-3.0	✓						
ES2344222-005	18-Dec-2023 00:00	ACM_TP17_0.0-0.2			✓		✓		✓
ES2344222-006	18-Dec-2023 00:00	ACM_TP17_0.9-1.0			✓		✓		✓
ES2344222-007	18-Dec-2023 00:00	ACM_TP17_1.6-1.7			✓				
ES2344222-008	18-Dec-2023 00:00	ACM_TP17_1.9-2.0	✓						
ES2344222-009	18-Dec-2023 00:00	ACM_TP17_2.9-3.0	✓						
ES2344222-010	18-Dec-2023 00:00	R_BH35A_0.0-0.2	✓						
ES2344222-011	18-Dec-2023 00:00	R_BH35A_0.5-0.6	✓						
ES2344222-012	18-Dec-2023 00:00	R_BH35A_1.3-1.5	✓						
ES2344222-013	18-Dec-2023 00:00	R_BH36_0.0-0.2					✓		
ES2344222-014	18-Dec-2023 00:00	R_BH36_0.5-0.6			✓				
ES2344222-015	17-Dec-2023 00:00	R_BH36_1.0-1.1			✓				
ES2344222-016	15-Dec-2023 00:00	ACM_BH12_0.0-0.2					✓		

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP080 BTEXN	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2344222-007	18-Dec-2023 00:00	ACM_TP17_1.6-1.7				✓	
ES2344222-014	18-Dec-2023 00:00	R_BH36_0.5-0.6	✓		✓		✓
ES2344222-015	17-Dec-2023 00:00	R_BH36_1.0-1.1	✓		✓		✓
ES2344222-018	15-Dec-2023 00:00	Trip Spike NULL		✓			
ES2344222-020	15-Dec-2023 00:00	Trip Control Spike		✓			

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2344222-019	15-Dec-2023 00:00	Trip Blank NULL	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2344222-017	17-Dec-2023 00:00	QC300_20231218 NULL	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

STEPHEN RANDALL

- *AU Certificate of Analysis - NATA (COA)	Email	Stephen.Randall@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Stephen.Randall@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Stephen.Randall@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Stephen.Randall@aecom.com
- Chain of Custody (CoC) (COC)	Email	Stephen.Randall@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Stephen.Randall@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

TAT

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN						Hold	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	ACM-TP13_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
2	ACM-TP13_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
3	ACM-TP13_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
4	ACM-TP13_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
5	ACM-TP17_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
6	ACM-TP17_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
7	ACM-TP17_1.6-1.7	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
8	ACM-TP17_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
9	ACM-TP17_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
10	R-BH35_0.0-0.2	S	18/12/23	-	J , ZLB	1,1													X	
11	R-BH35_0.5-0.6	S	18/12/23	-	J , ZLB	1,1													X	
12	R-BH35_1.3-1.5	S	18/12/23	-	J , ZLB	1,1													X	
13	R-BH36_0.0-0.2	S	18/12/23	-	J , ZLB	1,1													X	
14	R-BH36_0.5-0.6	S	18/12/23	-	J , ZLB	1,1													X	
15	R-BH36_1.0-1.1	S	17/12/23	PM	J , ZLB	1,1													X	
16	ACM-BH12_0.0-0.2	S	15/12/23	AM	J , ZLB	1,1													X	
-	ACM-BH12_0.5-0.6	S	17/12/23	PM	J , ZLB	1,1													X	Forward QC200 to Eurofins
17	QC300_20231218	W	15/12/23	AM	AG , P , V	1 ,1, 2													X	

Environmental Division
Sydney
Work Order Reference
ES2344222

Telephone : +61-2-8784 8555

Subcon (Forward Lab) Split WO ES2344222
Lab / Analysis:
Organised by / Date:
Relinquished by / Date:
Connote / Courier:
WO No: ES2344222
Attached By PD / Internal Sheet:

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	18/12/2023	Name:	Date:	Name: Lucas	Date: 19/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: ALS	Time: 1540	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

TAT

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT:	Eric Serttas	ADDRESS / OFFICE:		SAMPLER:	AECOM Geotech Team
PROJECT MANAGER (PM):	James Jentz	SITE:	Wyong	MOBILE:	+61 419 167 685
PROJECT NUMBER & TASK CODE:	60709736 - CDRL 400	P.O. NO.:		EMAIL REPORT TO:	eric.serttas@aecom.com , mark.tiedeman@aecom.com
RESULTS REQUIRED (Date):	3 days TAT	QUOTE NO.:		ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

Destination Laboratory: ALS

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN						HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	ACM-TP13_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
2	ACM-TP13_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
3	ACM-TP13_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
4	ACM-TP13_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
5	ACM-TP17_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
6	ACM-TP17_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
7	ACM-TP17_1.6-1.7	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
8	ACM-TP17_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
9	ACM-TP17_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
10	R-BH35_0.0-0.2	S	18/12/23	-	J , ZLB	1,1													X	
11	R-BH35_0.5-0.6	S	18/12/23	-	J , ZLB	1,1													X	
12	R-BH35_1.3-1.5	S	18/12/23	-	J , ZLB	1,1													X	
13	R-BH36_0.0-0.2	S	18/12/23	-	J , ZLB	1,1													X	
14	R-BH36_0.5-0.6	S	18/12/23	-	J , ZLB	1,1													X	
15	R-BH36_1.0-1.1	S	17/12/23	PM	J , ZLB	1,1													X	
16	ACM-BH12_0.0-0.2	S	15/12/23	AM	J , ZLB	1,1													X	
-	ACM-BH12_0.5-0.6	S	17/12/23	PM	J , ZLB	1,1													X	Forward QC200 to Eurofins
17	QC300_20231218	W	15/12/23	AM	AG , P , V	1,1,2													X	

Environmental Division
Sydney
Work Order Reference
ES2344222

Telephone : +61-2-8784 8555

Lab / Analysis:
Organised By / Date:
Relinquished By / Date:
Comms / Courier:
WO No: ES2344222
Attached By PO / Internal Sheet:

Subcon (Forward Lab) Split WO Eurofins

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	18/12/2023	Name:	Date:	Name: Lucas	Date: 19/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: ALS	Time: 1540	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 2 of 2

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS: QC, QP, PCB	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com, stephen.randall@aecom.com, kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols	TRH, BTEXN, Metals	C6-C9 / BTEXN	PFAS (short suite)	CHCs	OC, OP, PCB			HOLD	Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	ACM-TP13_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1		X		X	X					X				
2	ACM-TP13_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1				X	X					X				
3	ACM-TP13_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1			X										X	
4	ACM-TP13_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
5	ACM-TP17_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	2,2,1		X		X	X					X				
6	ACM-TP17_0.9-1.0	S	18/12/23	-	J , PJ, ZLB	2,2,1		X		X	X					X				
7	ACM-TP17_1.6-1.7	S	18/12/23	-	J , PJ, ZLB	2,2,1				X									X	
8	ACM-TP17_1.9-2.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
9	ACM-TP17_2.9-3.0	S	18/12/23	-	J , PJ, ZLB	2,2,1													X	
10	R-BH35_0.0-0.2	S	18/12/23	-	J , ZLB	1,1													X	
11	R-BH35_0.5-0.6	S	18/12/23	-	J , ZLB	1,1													X	
12	R-BH36_1.3-1.5	S	18/12/23	-	J , ZLB	1,1													X	
13	R-BH36_0.0-0.2	S	18/12/23	-	J , PJ, ZLB	1,1,1		X												
14	R-BH36_0.5-0.6	S	18/12/23	-	J , PJ, ZLB	1,1,1				X	X			X	X					
15	R-BH36_1.0-1.1	S	17/12/23	PM	J , PJ, ZLB	1,1,1				X	X			X	X					
16	ACM-BH12_0.0-0.2	S	15/12/23	AM	J , ZLB	1,1		X												
—	ACM-BH12_0.6-0.8	S	17/12/23	PM	J , ZLB	1,1				X	X			X	X					
17	QC300_20231218	W	15/12/23	AM	AG , P , V, PJ	1 ,1, 2				X					X					

Environmental Division Sydney
Work Order Reference
ES2344222

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		SUBCONTRACT INFORMATION
Name: Eric Serttas	21/12/2023	Name: Jack	Date: 22/12/23	Name:	Date:	Lab / Analysis: Asbestos / ALS Newcastle
Of:	Time: PM	Of: ALS	Time: 9am	Of:	Time:	Organised By / Date: Clay Content
						Courier / Carrier:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Glass Jar

Relinquished By / Date:

WO No: ES2344222 COC Page 1 of 1

Attached By PO / Internal Sheet:

CERTIFICATE OF ANALYSIS

Work Order	: **ES2344223**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023 15:40
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 16-Jan-2024 17:48
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (16/01/2023): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for samples R-BH29. All analysis results are as per the previous report.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
			Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2344223-001	ES2344223-002	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**6.7**	**15.3**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**318**	----	----	----	----
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----
Organic Fibre	----	-	--	**No**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	**0.318**	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**9**	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**8**	**7**	----	----	----
Copper	7440-50-8	5	mg/kg	**48**	**6**	----	----	----
Lead	7439-92-1	5	mg/kg	**38**	**9**	----	----	----
Nickel	7440-02-0	2	mg/kg	**10**	**2**	----	----	----
Zinc	7440-66-6	5	mg/kg	**74**	**14**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
			Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2344223-001	ES2344223-002	--------	--------	--------
				Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344223-001	ES2344223-002	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344223-001	ES2344223-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344223-001	ES2344223-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH29_0.0-0.2	R-BH29_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344223-001	ES2344223-002	--------	--------	--------
					Result	Result	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**77.4**	**----**	**----**	**----**	**----**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**90.4**	**----**	**----**	**----**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**108**	**----**	**----**	**----**	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**78.3**	**72.4**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**83.0**	**77.6**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.7**	**71.8**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**84.4**	**79.7**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**99.5**	**96.6**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**95.0**	**92.5**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**88.3**	**92.9**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**94.1**	**102**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**102**	**107**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R-BH29_0.0-0.2 - 07-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2344223**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 16-Jan-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515163)									
ES2344223-001	R-BH29_0.0-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	7	19.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	10	9	18.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	7	25.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	48	36	26.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	38	29	24.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	74	67	9.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515164)									
ES2344223-001	R-BH29_0.0-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5513433)									
ES2344223-001	R-BH29_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513432)									
ES2344223-001	R-BH29_0.0-0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513432) - continued									
ES2344223-001	R-BH29_0.0-0.2	EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5513432)									
ES2344223-001	R-BH29_0.0-0.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513431)									
ES2344223-001	R-BH29_0.0-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513431) - continued									
ES2344223-001	R-BH29_0.0-0.2	EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513431)									
ES2344223-001	R-BH29_0.0-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513430)									
ES2344223-001	R-BH29_0.0-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513786)									
ES2344223-001	R-BH29_0.0-0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513430)									
ES2344223-001	R-BH29_0.0-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513430) - continued									
ES2344223-001	R-BH29_0.0-0.2	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513786)									
ES2344223-001	R-BH29_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5513786)									
ES2344223-001	R-BH29_0.0-0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515163)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.1	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	74.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	101	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	96.2	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.1	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	89.9	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	84.3	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515164)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	113	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513433)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.9	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	104	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513432)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	83.5	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	78.0	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	74.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.7	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5513431)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	101	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	96.3	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	98.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	85.5	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	93.5	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	99.5	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.7	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.2	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5513431) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	87.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	66.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513431)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	92.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	91.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	91.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	108	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	108	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	107	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	102	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	108	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.1	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	86.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513430)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	118	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	96.4	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513786)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.0	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513430)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	114	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.3	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	80.1	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513786)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	82.9	72.4	133
EP080: BTEXN (QCLot: 5513786)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.8	76.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5513786) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.4	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.7	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.3	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.7	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.0	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515163)							
ES2344223-001	R-BH29_0.0-0.2	EG005T: Arsenic	7440-38-2	50 mg/kg	96.0	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	95.1	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.4	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	95.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515164)							
ES2344223-001	R-BH29_0.0-0.2	EG035T: Mercury	7439-97-6	5 mg/kg	92.1	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513433)							
ES2344223-001	R-BH29_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.6	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432)							
ES2344223-001	R-BH29_0.0-0.2	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	99.0	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	70.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513432)							
ES2344223-001	R-BH29_0.0-0.2	EP068: Diazinon	333-41-5	0.5 mg/kg	75.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	90.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	89.9	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513432) - continued							
ES2344223-001	R-BH29_0.0-0.2	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	91.9	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	80.6	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513431)							
ES2344223-001	R-BH29_0.0-0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	99.6	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.7	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	96.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.9	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.5	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513431)							
ES2344223-001	R-BH29_0.0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.5	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513430)							
ES2344223-001	R-BH29_0.0-0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	131	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	103	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	117	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513786)							
ES2344223-001	R-BH29_0.0-0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	93.0	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513430)							
ES2344223-001	R-BH29_0.0-0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	127	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	107	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	84.2	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513786)							
ES2344223-001	R-BH29_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.0	61.1	142
EP080: BTEXN (QCLot: 5513786)							
ES2344223-001	R-BH29_0.0-0.2	EP080: Benzene	71-43-2	2.5 mg/kg	90.1	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	90.2	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.5	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	98.2	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.0	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.7	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2344223**	Page	: 1 of 7
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 19-Dec-2023
Site	: Wyong	Issue Date	: 16-Jan-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 2
Order number	: 60709736	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2	----	----	----	22-Dec-2023	21-Dec-2023	**1**
Soil Glass Jar - Unpreserved						
R-BH29_0.9-1.0	----	----	----	27-Dec-2023	21-Dec-2023	**6**
EP066: Polychlorinated Biphenyls (PCB)						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP068A: Organochlorine Pesticides (OC)						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	23-Dec-2023	21-Dec-2023	**2**
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	23-Dec-2023	21-Dec-2023	**2**
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
R-BH29_0.0-0.2, R-BH29_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	23-Dec-2023	21-Dec-2023	**2**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
R-BH29_0.0-0.2	**07-Dec-2023**	**----**	----	----	**22-Dec-2023**	21-Dec-2023	×
Soil Glass Jar - Unpreserved (EA055)							
R-BH29_0.9-1.0	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	21-Dec-2023	×
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
R-BH29_0.0-0.2	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	04-Jun-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
R-BH29_0.0-0.2	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	04-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
R-BH29_0.0-0.2, R-BH29_0.9-1.0	**07-Dec-2023**	**27-Dec-2023**	04-Jun-2024	✓	**27-Dec-2023**	04-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
R-BH29_0.0-0.2, R-BH29_0.9-1.0	**07-Dec-2023**	**27-Dec-2023**	04-Jan-2024	✓	**27-Dec-2023**	04-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	31-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
R-BH29_0.0-0.2, R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	31-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	21-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	21-Dec-2023	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH29_0.0-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	21-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	21-Dec-2023	×
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) R-BH29_0.0-0.2, R-BH29_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**23-Dec-2023**	21-Dec-2023	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2344223**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 19-Dec-2023 15:40	Issue Date	: 16-Jan-2024
Client Requested Due Date	: 27-Dec-2023	Scheduled Reporting Date	: **27-Dec-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 6.3'C, 8.3'C, 5.8'C - Ice present
Receipt Detail	: Large esky	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **22/12/23: This is an updated SRN which indicates the analysis for the samples as per updated COC.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-19 TRH/BTEXN/PAH/Phl/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2344223-001	07-Dec-2023 00:00	R-BH29_0.0-0.2	✓	✓	✓	
ES2344223-002	07-Dec-2023 00:00	R-BH29_0.9-1.0	✓			✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA055: Moisture Content							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	----	21-Dec-2023	19-Dec-2023	✓	22-Dec-2023	×
R-BH29_0.9-1.0	Soil Glass Jar - Unpreserved	----	21-Dec-2023	19-Dec-2023	✓	22-Dec-2023	×
EP066: Polychlorinated Biphenyls (PCB)							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
EP068: Pesticides by GCMS							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
EP071: TRH - Semivolatile Fraction							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
R-BH29_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
EP075(SIM): PAH/Phenols (SIM)							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
R-BH29_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	31-Jan-2024	19-Dec-2023	✓	22-Dec-2023	×
EP080: TRH Volatiles/BTEX							
R-BH29_0.0-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	21-Dec-2023	19-Dec-2023	✓	22-Dec-2023	×
R-BH29_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	21-Dec-2023	19-Dec-2023	✓	22-Dec-2023	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

STEPHEN RANDALL

- *AU Certificate of Analysis - NATA (COA)	Email	Stephen.Randall@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Stephen.Randall@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Stephen.Randall@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Stephen.Randall@aecom.com
- Chain of Custody (CoC) (COC)	Email	Stephen.Randall@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Stephen.Randall@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

ANZ

FQM - Generic Chain of Custody Form

TAT

AECOM

Q4AN(EV)-007-FM1

CONSULTANT:	Eric Serttas	ADDRESS / OFFICE:	
PROJECT MANAGER(PM):	James Jentz	SITE:	Wyong
PROJECT NUMBER & TASK CODE:	60709736 - CDRL 400	P.O. NO.:	
RESULTS REQUIRED (Date):	3 days TAT	QUOTE NO.:	

SAMPLER:	AECOM Geotech Team		Destination Laboratory
MOBILE:	+61 419 167 685	PHONE:	ALS
EMAIL REPORT TO:	eric.serttas@aecom.com , mark.tiedeman@aecom.com		

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)

CONTAINER INFORMATION

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN	HOLD
	A-BH29_0.0-0.2	S	7/12/23	-	J , ZLB	2 ,1								X
	A-BH29_0.9-1.0	S	7/12/23	-	J , ZLB	2 ,1								X

Environmental Division
Sydney
Work Order Reference
ES2344223

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	18/12/2023	Name:	Date:	Name: Wes	Date: 19/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: LCS	Time: 1540	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

18.12 (2)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2016

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com, stephen.randall@aecom.com, kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): 1 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

SAMPLE INFORMATION (note: S = Soil, W = Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN						HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	R-BH29_0.0-0.2	S	7/12/23	-	J , ZLB	2 ,1		X		X	X								
2	R-BH29_0.9-1.0	S	7/12/23	-	J , ZLB	2 ,1				X									

Environmental Division
Sydney
Work Order Reference
ES2344223

Telephone : - 61-2-8784 8555

TAT

Subcon / Forward Lab / Split WO
Lab / Analysis: Newcastle - Asbestos, 1
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No. ES2344223
Attach By PO / Internal Sheet:

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	22/12/2023	Name: JACK	Date: 22/12/23	Name:	Date:	Con' Note No:
Of:	Time: PM	Of: AQ	Time: 2pm	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

CERTIFICATE OF ANALYSIS

Work Order	: **ES2344549**	Page	: 1 of 22
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 18-Dec-2023 19:45
Order number	: 60709736 - CDRL 400	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 11:57
Sampler	: GEOTECH TEAM		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 18		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 07, 016-018. All analysis results are as per the previous report.
- Amendment (02/02/2024): This report has been amended to allow an update to comments on the SRN regarding sample QC100 which was not received for analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)

- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.4	12.7	7.0	18.5	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	No
Asbestos Type	1332-21-4	-	--	-	----	-	----	-
Asbestos (Trace)	1332-21-4	-	-	No	----	No	----	No
Sample weight (dry)	----	0.01	g	286	----	194	----	210
Synthetic Mineral Fibre	----	-	--	No	----	No	----	No
Organic Fibre	----	-	--	No	----	No	----	No
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	B.SCHRADER	----	B.SCHRADER
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	----	<0.0004
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	----	<0.001
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	<0.1
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	----	<0.01
ø Weight Used for % Calculation	----	0.0001	kg	0.286	----	0.194	----	0.210
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	----	<0.0004
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	8	<5	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	32	15	58	16	----
Copper	7440-50-8	5	mg/kg	29	8	49	16	----
Lead	7439-92-1	5	mg/kg	6	8	<5	6	----
Nickel	7440-02-0	2	mg/kg	20	5	99	19	----
Zinc	7440-66-6	5	mg/kg	32	17	40	18	----
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
				Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg	<5	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg	<5	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg	<5	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**81.8**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**96.9**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH46_0.04-0.6	BH46_1.1-1.3	BH40_0.07-0.47	BH40_1.2-1.4	A-BH06_0.05-0.4
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344549-001	ES2344549-003	ES2344549-006	ES2344549-009	ES2344549-011
				Result	Result	Result	Result	Result
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	109	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.5	%	71.2	75.3	79.6	66.7	----
Toluene-D8	2037-26-5	0.5	%	71.5	77.0	79.1	67.2	----
4-Bromofluorobenzene	460-00-4	0.5	%	80.2	82.8	83.9	71.1	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	72.6	78.8	77.4	76.9	----
2-Chlorophenol-D4	93951-73-6	0.5	%	76.7	86.2	83.5	82.8	----
2.4.6-Tribromophenol	118-79-6	0.5	%	73.0	75.9	73.5	73.9	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	80.1	87.1	85.6	85.5	----
Anthracene-d10	1719-06-8	0.5	%	98.6	103	102	102	----
4-Terphenyl-d14	1718-51-0	0.5	%	94.8	98.9	98.8	97.3	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	74.0	78.6	82.7	69.2	----
Toluene-D8	2037-26-5	0.2	%	75.9	81.9	84.1	71.3	----
4-Bromofluorobenzene	460-00-4	0.2	%	101	103	103	89.8	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
			Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	**----**	**----**	**11.4**	**----**	**----**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.6**	**17.1**	**----**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	**8**	**----**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	**----**	**----**
Chromium	7440-47-3	2	mg/kg	**25**	**12**	**14**	**----**	**----**
Copper	7440-50-8	5	mg/kg	**13**	**6**	**10**	**----**	**----**
Lead	7439-92-1	5	mg/kg	**5**	**8**	**8**	**----**	**----**
Nickel	7440-02-0	2	mg/kg	**27**	**4**	**7**	**----**	**----**
Zinc	7440-66-6	5	mg/kg	**14**	**16**	**26**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	**----**	**----**
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	**----**	**----**	**----**
Chloromethane	74-87-3	5	mg/kg	<5	<5	**----**	**----**	**----**
Vinyl chloride	75-01-4	5	mg/kg	<5	<5	**----**	**----**	**----**
Bromomethane	74-83-9	5	mg/kg	<5	<5	**----**	**----**	**----**
Chloroethane	75-00-3	5	mg/kg	<5	<5	**----**	**----**	**----**
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	**----**	**----**	**----**
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
					Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
					Result	Result	Result	----	----
EP074F: Halogenated Aromatic Compounds - Continued									
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**82.2**	**80.6**	----	----	----
Toluene-D8	2037-26-5	0.5	%		**80.6**	**80.9**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**88.7**	**83.9**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**74.9**	**74.9**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**80.5**	**80.3**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**68.6**	**69.9**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**83.3**	**82.6**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**99.1**	**98.3**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**95.0**	**95.4**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**85.5**	**84.2**	**82.0**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH06_0.4-0.6	A-BH06_1.0-1.2	A-BH06_3.0-3.1	----	----
				Sampling date / time	15-Dec-2023 00:00	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344549-012	ES2344549-013	ES2344549-015	--------	--------
					Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		**85.6**	**85.7**	**84.3**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**110**	**104**	**102**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231215 NULL	QC300_20231217 NULL	----	----	----
				Sampling date / time	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344549-017	ES2344549-018	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231215 NULL	QC300_20231217 NULL	----	----	----
				Sampling date / time	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344549-017	ES2344549-018	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**22.2**	**21.3**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231215 NULL	QC300_20231217 NULL	----	----	----
				Sampling date / time	15-Dec-2023 00:00	17-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344549-017	ES2344549-018	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**33.8**	**41.5**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**22.4**	**36.4**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**63.3**	**51.4**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**65.3**	**52.8**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**72.6**	**61.8**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**101**	**90.9**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**103**	**91.3**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**125**	**112**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH46_0.04-0.6 - 15-Dec-2023 00:00	A soil sample.
EA200: Description	BH40_0.07-0.47 - 15-Dec-2023 00:00	A soil sample.
EA200: Description	A-BH06_0.05-0.4 - 15-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2344549**	Page	: 1 of 16
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
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Project	: 60709736 - CDRL 400	Date Samples Received	: 18-Dec-2023
Order number	: 60709736 - CDRL 400	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: GEOTECH TEAM		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 18		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515155)									
ES2344549-001	BH46_0.04-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	32	26	19.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	20	26	24.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	6	48.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	18	47.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	27	16.9	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5515157)									
ES2344549-006	BH40_0.07-0.47	EA055: Moisture Content	----	0.1 (1.0)*	%	7.0	6.5	8.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515156)									
ES2344549-001	BH46_0.04-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5513433)									
ES2344223-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513432)									
ES2344223-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513432) - continued									
ES2344223-001	Anonymous	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5513432)									
ES2344223-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5513788)									
ES2344549-001	BH46_0.04-0.6	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5513788) - continued									
ES2344549-001	BH46_0.04-0.6	EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5513788)									
ES2344549-001	BH46_0.04-0.6	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5513788)									
ES2344549-001	BH46_0.04-0.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5513788) - continued									
ES2344549-001	BH46_0.04-0.6	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5513788)									
ES2344549-001	BH46_0.04-0.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513431)									
ES2344223-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513431)									
ES2344223-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513431) - continued									
ES2344223-001	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513430)									
ES2344223-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513787)									
ES2344549-001	BH46_0.04-0.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513430)									
ES2344223-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513787)									
ES2344549-001	BH46_0.04-0.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5513787)									
ES2344549-001	BH46_0.04-0.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5513979)									
ES2344528-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5513979) - continued									
ES2344528-001	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.011	0.010	0.0	No Limit
EW2305602-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.008	0.009	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.016	0.016	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5514005)									
ES2343874-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2343888-008	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513441)									
WN2315258-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513441)									
WN2315258-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5513441)									
WN2315258-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515155)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	94.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	104	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	107	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	105	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	92.7	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	91.5	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	85.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515156)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	120	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513433)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.9	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	104	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513432)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	83.5	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	78.0	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	74.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.5	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	66.7	41.0	123
EP074D: Fumigants (QCLot: 5513788)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	91.9	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	97.6	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	95.8	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	99.4	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513788)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	82.8	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	82.4	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	87.6	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	91.2	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513788) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	89.0	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	88.2	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	92.9	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	74.4	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	95.8	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.0	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	98.5	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	93.8	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.7	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	99.8	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	95.7	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	96.6	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	94.7	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	94.8	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	94.7	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	103	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	102	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	101	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	94.2	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	94.6	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	92.5	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5513788)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	96.7	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.6	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	97.4	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	101	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	99.6	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	99.4	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	103	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5513788)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	95.9	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	92.6	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	95.0	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	93.1	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5513431)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	101	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	96.3	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	98.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	85.5	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	93.5	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	99.5	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.7	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.2	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	87.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	66.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513431)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	92.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	91.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	91.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	108	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	108	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	107	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	102	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	108	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.1	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.0	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513431) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	86.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513430)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	118	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	96.4	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513787)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	98.8	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513430)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	114	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.3	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	80.1	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513787)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.7	72.4	133
EP080: BTEXN (QCLot: 5513787)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.8	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.5	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	110	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	112	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.7	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5513979)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.2	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.0	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.6	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5514005)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	104	77.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513386)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	54.0	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.5	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	63.9	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	66.5	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	64.5	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	67.3	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	68.6	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	68.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	72.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	75.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	78.3	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	86.7	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	73.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	71.3	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	68.4	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	76.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513387)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	79.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	102	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513441)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	91.6	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513387)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	71.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	93.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	77.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513441)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.9	75.0	127
EP080: BTEXN (QCLot: 5513441)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	110	73.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5513441) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	98.0	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515155)							
ES2344549-001	BH46_0.04-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	93.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	86.6	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.1	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	112	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	86.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515156)							
ES2344549-001	BH46_0.04-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	94.8	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513433)							
ES2344223-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.6	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513432)							
ES2344223-001	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	85.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	89.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	99.0	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	70.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513432)							
ES2344223-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	75.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	90.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	89.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	91.9	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	80.6	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513788)							
ES2344549-001	BH46_0.04-0.6	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	89.9	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5513788) - continued							
ES2344549-001	BH46_0.04-0.6	EP074: Trichloroethene	79-01-6	2.5 mg/kg	85.0	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5513788)							
ES2344549-001	BH46_0.04-0.6	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	81.6	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513431)							
ES2344223-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	99.6	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	99.7	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	96.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.9	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	64.5	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513431)							
ES2344223-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	88.5	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	104	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513430)							
ES2344223-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	131	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	103	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	117	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513787)							
ES2344549-001	BH46_0.04-0.6	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.2	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513430)							
ES2344223-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	127	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	107	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	84.2	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513787)							
ES2344549-001	BH46_0.04-0.6	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	86.4	61.1	142
EP080: BTEXN (QCLot: 5513787)							
ES2344549-001	BH46_0.04-0.6	EP080: Benzene	71-43-2	2.5 mg/kg	85.6	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	88.5	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.1	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	102	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	106	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	93.1	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5513979)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5513979) - continued							
ES2344528-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.6	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.8	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	102	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5514005)							
ES2343874-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	77.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513441)							
WN2315258-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	98.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513441)							
WN2315258-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	98.0	70.0	130
EP080: BTEXN (QCLot: 5513441)							
WN2315258-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	106	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	107	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	92.9	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2344549**	Page	: 1 of 10
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 18-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: GEOTECH TEAM	No. of samples received	: 18
Order number	: 60709736 - CDRL 400	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074D: Fumigants						
Soil Glass Jar - Unpreserved						
A-BH06_1.0-1.2	----	----	----	23-Dec-2023	22-Dec-2023	**1**
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved						
A-BH06_1.0-1.2	----	----	----	23-Dec-2023	22-Dec-2023	**1**
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved						
A-BH06_1.0-1.2	----	----	----	23-Dec-2023	22-Dec-2023	**1**
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
A-BH06_1.0-1.2	----	----	----	23-Dec-2023	22-Dec-2023	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055)							
A-BH06_3.0-3.1	**17-Dec-2023**	**----**	----	**----**	**27-Dec-2023**	31-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH46_0.04-0.6, BH40_0.07-0.47, A-BH06_0.4-0.6, BH46_1.1-1.3, BH40_1.2-1.4, A-BH06_1.0-1.2	**15-Dec-2023**	**----**	----	----	**27-Dec-2023**	29-Dec-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
BH46_0.04-0.6, BH40_0.07-0.47, A-BH06_0.05-0.4	**15-Dec-2023**	**----**	----	----	**27-Dec-2023**	12-Jun-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
BH46_0.04-0.6, BH40_0.07-0.47, A-BH06_0.05-0.4	**15-Dec-2023**	**----**	----	----	**27-Dec-2023**	12-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH46_0.04-0.6, BH40_0.07-0.47, A-BH06_0.4-0.6, BH46_1.1-1.3, BH40_1.2-1.4, A-BH06_1.0-1.2	**15-Dec-2023**	**27-Dec-2023**	12-Jun-2024	✓	**27-Dec-2023**	12-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)							
A-BH06_3.0-3.1	**17-Dec-2023**	**27-Dec-2023**	14-Jun-2024	✓	**27-Dec-2023**	14-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH46_0.04-0.6, BH40_0.07-0.47, A-BH06_0.4-0.6, BH46_1.1-1.3, BH40_1.2-1.4, A-BH06_1.0-1.2	**15-Dec-2023**	**27-Dec-2023**	12-Jan-2024	✓	**28-Dec-2023**	12-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)							
A-BH06_3.0-3.1	**17-Dec-2023**	**27-Dec-2023**	14-Jan-2024	✓	**28-Dec-2023**	14-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
BH46_0.04-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH46_0.04-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH46_0.04-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**22-Dec-2023**	22-Dec-2023	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6								
Soil Glass Jar - Unpreserved (EP074)								
A-BH06_1.0-1.2		**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**23-Dec-2023**	22-Dec-2023	×
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**22-Dec-2023**	22-Dec-2023	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6								
Soil Glass Jar - Unpreserved (EP074)								
A-BH06_1.0-1.2		**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**23-Dec-2023**	22-Dec-2023	×
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**22-Dec-2023**	22-Dec-2023	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6								
Soil Glass Jar - Unpreserved (EP074)								
A-BH06_1.0-1.2		**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**23-Dec-2023**	22-Dec-2023	×
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**22-Dec-2023**	22-Dec-2023	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6								
Soil Glass Jar - Unpreserved (EP074)								
A-BH06_1.0-1.2		**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**23-Dec-2023**	22-Dec-2023	×
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**23-Dec-2023**	31-Jan-2024	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6,	A-BH06_1.0-1.2							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH46_0.04-0.6,	BH46_1.1-1.3,	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**23-Dec-2023**	31-Jan-2024	✓
BH40_0.07-0.47,	BH40_1.2-1.4,							
A-BH06_0.4-0.6,	A-BH06_1.0-1.2							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BH46_0.04-0.6, BH46_1.1-1.3, BH40_0.07-0.47, BH40_1.2-1.4, A-BH06_0.4-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**22-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_1.0-1.2	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**23-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH46_0.04-0.6, BH46_1.1-1.3, BH40_0.07-0.47, BH40_1.2-1.4, A-BH06_0.4-0.6, A-BH06_1.0-1.2	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_3.0-3.1	**17-Dec-2023**	**22-Dec-2023**	31-Dec-2023	✓	**23-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH06_3.0-3.1	**17-Dec-2023**	**22-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) BH46_0.04-0.6, BH46_1.1-1.3, BH40_0.07-0.47, BH40_1.2-1.4, A-BH06_0.4-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**22-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_1.0-1.2	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**23-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH46_0.04-0.6, BH46_1.1-1.3, BH40_0.07-0.47, BH40_1.2-1.4, A-BH06_0.4-0.6, A-BH06_1.0-1.2	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_3.0-3.1	**17-Dec-2023**	**22-Dec-2023**	31-Dec-2023	✓	**23-Dec-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) A-BH06_3.0-3.1	**17-Dec-2023**	**22-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	31-Jan-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BH46_0.04-0.6, BH46_1.1-1.3, BH40_0.07-0.47, BH40_1.2-1.4, A-BH06_0.4-0.6	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**22-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_1.0-1.2	**15-Dec-2023**	**22-Dec-2023**	29-Dec-2023	✓	**23-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) A-BH06_3.0-3.1	**17-Dec-2023**	**22-Dec-2023**	31-Dec-2023	✓	**23-Dec-2023**	31-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231215 - NULL	**15-Dec-2023**	**23-Dec-2023**	12-Jun-2024	✓	**23-Dec-2023**	12-Jun-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231217 - NULL	**17-Dec-2023**	**23-Dec-2023**	14-Jun-2024	✓	**23-Dec-2023**	14-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231215 - NULL	**15-Dec-2023**	**----**	----	----	**28-Dec-2023**	12-Jan-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231217 - NULL	**17-Dec-2023**	**----**	----	----	**28-Dec-2023**	14-Jan-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231215 - NULL	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231217 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231215 - NULL	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20231217 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231215 - NULL	**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231217 - NULL	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	31-Dec-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231215 - NULL	**15-Dec-2023**	**22-Dec-2023**	22-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20231217 - NULL	**17-Dec-2023**	**22-Dec-2023**	24-Dec-2023	✓	**28-Dec-2023**	31-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231215 - NULL	**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231217 - NULL	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	31-Dec-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231215 - NULL	**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231217 - NULL	**17-Dec-2023**	**27-Dec-2023**	31-Dec-2023	✓	**27-Dec-2023**	31-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2344549**		
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736 - CDRL 400	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: GEOTECH TEAM		

Dates

Date Samples Received	: 18-Dec-2023 19:45	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 28-Dec-2023	Scheduled Reporting Date	: **28-Dec-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 13.9'C 12.0'C 15.9'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 18 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **QC forward analysis will be conducted by Eurofins.**
- **This is an updated SRN to remove analysis from sample QC100 as it was not received for analysis despite references on the original SRN.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2344549-016 : [14-Dec-2023] : QC100_20231214 - NULL
ES2344549-017 : [15-Dec-2023] : QC300_20231215 - NULL
ES2344549-018 : [17-Dec-2023] : QC300_20231217 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2344549-001	15-Dec-2023 00:00	BH46_0.04-0.6		✓	✓	✓		✓	
ES2344549-002	15-Dec-2023 00:00	BH46_0.6-0.8	✓						
ES2344549-003	15-Dec-2023 00:00	BH46_1.1-1.3		✓		✓			✓
ES2344549-004	15-Dec-2023 00:00	BH46_2.2-2.4	✓						
ES2344549-005	15-Dec-2023 00:00	BH46_2.5-2.7	✓						
ES2344549-006	15-Dec-2023 00:00	BH40_0.07-0.47		✓	✓	✓			✓
ES2344549-007	15-Dec-2023 00:00	BH40_0.47-0.52	✓						
ES2344549-008	15-Dec-2023 00:00	BH40_0.6-0.8	✓						
ES2344549-009	15-Dec-2023 00:00	BH40_1.2-1.4		✓		✓			✓
ES2344549-010	15-Dec-2023 00:00	BH40_2.2-2.4	✓						
ES2344549-011	15-Dec-2023 00:00	A-BH06_0.05-0.4			✓				
ES2344549-012	15-Dec-2023 00:00	A-BH06_0.4-0.6		✓		✓			✓
ES2344549-013	15-Dec-2023 00:00	A-BH06_1.0-1.2		✓		✓			✓
ES2344549-014	15-Dec-2023 00:00	A-BH06_1.5-1.7	✓						
ES2344549-015	17-Dec-2023 00:00	A-BH06_3.0-3.1		✓			✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2344549-017	15-Dec-2023 00:00	QC300_20231215 NULL	✓
ES2344549-018	17-Dec-2023 00:00	QC300_20231217 NULL	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

Mark Tiedeman

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN	VOCs	Phenols / CHCs				HOLD	Notes, e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
	BH46_0.04-0.6	S	15/12/23	AM	J , ZLB	1,1		X		X	X				X					
	BH46_0.6-0.8	S	15/12/23	AM	J , ZLB	1,1													X	
	BH46_1.1-1.3	S	15/12/23	AM	J , ZLB	1,1				X					X					
	BH46_2.2-2.4	S	15/12/23	AM	J , ZLB	1,1													X	
	BH46_2.5-2.7	S	15/12/23	AM	J , ZLB	1,1													X	
-	BH40_0.07-0.17	S	15/12/23	AM	J , ZLB	1,1		X		X					X					
-	BH40_0.45-0.52	S	15/12/23	AM	J , ZLB	1,1													X	
-	BH40_0.6-0.8	S	15/12/23	AM	J , ZLB	1,1													X	
-	BH40_1.2-1.4	S	15/12/23	AM	J , ZLB	1,1				X					X					
-	BH40_2.2-2.4	S	15/12/23	AM	J , ZLB	1,1													X	
-	A-BH06_0.05-0.4	S	15/12/23	AM	J , ZLB	1,1		X												
	A-BH06_0.4-0.6	S	15/12/23	AM	J , ZLB	1,1				X					X					
	A-BH06_1.0-1.2	S	15/12/23	AM	J , ZLB	1,1				X					X					
	A-BH06_1.5-1.7	S	15/12/23	AM	J , ZLB	1,1													X	
	A-BH06_3.0-3.1	S	17/12/23	PM	J , ZLB	1,1						X								
	QC100_20231214	S	15/12/23	AM	J , ZLB	1,1				X					X					
-	QC200_20231217	S	17/12/23	PM	J , ZLB	1,1						X								
	QC300_20231215	W	15/12/23	AM	AG , P , V	1 ,1, 2				X										
	QC300_20231217	W	17/12/23	PM	AG , P , V	1 ,1, 2				X										

Environmental Division
Sydney
Work Order Reference
ES2344549

Telephone : + 61-2-8784 8555

Subcon Forward COC / Split WO
Lab / Analysis: ALS Newcastle/Eurofins
Organised By / Date:
Relinquished By / Date:
Connote / Courier: Asbestos/Eurofins Run
WO No: ES2344549
Attach By PO / Disposal Sheet:

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	18/12/2023	Name:	Date:	Name: WCOCS	Date: 21/12/23	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: ALS	Time: 1509	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic;
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

TAT

COC Page 2 of 2

CERTIFICATE OF ANALYSIS

Work Order	: **ES2344603**	Page	: 1 of 25
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 21-Dec-2023 19:50
Order number	: 60709736	Date Analysis Commenced	: 27-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024 12:03
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 21		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG020A-T: Positive results for sample ES2344603-018 have been confirmed by re-digestion and re-analysis.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004, 013-014, 017-021. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)

- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
			Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.9	9.8	16.3	----	11.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	----	No	----
Asbestos Type	1332-21-4	-	--	-	-	----	-	----
Asbestos (Trace)	1332-21-4	-	-	No	No	----	No	----
Sample weight (dry)	----	0.01	g	326	507	----	468	----
Synthetic Mineral Fibre	----	-	--	No	No	----	No	----
Organic Fibre	----	-	--	No	No	----	No	----
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	B.SCHRADER	----	B.SCHRADER	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	<0.0004	----	<0.0004	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	<0.001	----	<0.001	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	<0.1	----	<0.1	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	<0.01	----	<0.01	----
ø Weight Used for % Calculation	----	0.0001	kg	0.326	0.507	----	0.468	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	<0.0004	----	<0.0004	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	<5	9	----	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	22	13	14	----	16
Copper	7440-50-8	5	mg/kg	64	76	10	----	<5
Lead	7439-92-1	5	mg/kg	143	13	18	----	10
Nickel	7440-02-0	2	mg/kg	10	17	6	----	3
Zinc	7440-66-6	5	mg/kg	333	53	23	----	9
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
			Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
				Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	**0.1**	<0.1	<0.1	----	<0.1
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	<5	----	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	<5	----	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	<5	----	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	<2	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	0.8	<0.5	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	**0.8**	<0.5	----	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	**0.6**	**0.6**	----	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	**1.2**	**1.2**	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	**0.0002**	<0.0002	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	<0.001	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	**0.0002**	<0.0002	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	**0.0002**	<0.0002	----	<0.0002
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	**77.4**	**83.4**	----	**85.1**
Toluene-D8	2037-26-5	0.5	%		----	**79.0**	**84.6**	----	**87.6**
4-Bromofluorobenzene	460-00-4	0.5	%		----	**83.2**	**85.4**	----	**88.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP13_0.0-0.2	ACM-TP18_0.0-0.2	ACM-TP18_1.9-2.0	ACM-BH12A_0.0-0.2	ACM-BH12A_0.5-0.6
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-001	ES2344603-005	ES2344603-007	ES2344603-009	ES2344603-010
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	83.7	81.2	----	85.3
2-Chlorophenol-D4	93951-73-6	0.5	%		----	90.4	84.5	----	91.5
2.4.6-Tribromophenol	118-79-6	0.5	%		----	92.1	73.3	----	70.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	108	94.3	----	97.1
Anthracene-d10	1719-06-8	0.5	%		----	111	97.4	----	97.7
4-Terphenyl-d14	1718-51-0	0.5	%		----	111	94.3	----	95.2
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	77.6	85.4	----	87.1
Toluene-D8	2037-26-5	0.2	%		----	78.8	84.6	----	87.5
4-Bromofluorobenzene	460-00-4	0.2	%		----	76.2	78.1	----	81.3
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	103	98.6	----	100
13C8-PFOA	----	0.0002	%		----	104	98.4	----	102

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
			Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**27.2**	**17.9**	**15.7**	**----**	**----**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**----**	**No**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**----**	**-**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-	**----**	**No**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**----**	**311**	**----**	**----**	**----**
Synthetic Mineral Fibre	----	-	--	**----**	**No**	**----**	**----**	**----**
Organic Fibre	----	-	--	**----**	**No**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**----**	**B.SCHRADER**	**----**	**----**	**----**
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	**----**	<0.0004	**----**	**----**	**----**
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	**----**	<0.001	**----**	**----**	**----**
ø Asbestos Containing Material	1332-21-4	0.1	g	**----**	<0.1	**----**	**----**	**----**
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	**----**	<0.01	**----**	**----**	**----**
ø Weight Used for % Calculation	----	0.0001	kg	**----**	**0.311**	**----**	**----**	**----**
ø Fibrous Asbestos >7mm	----	0.0004	g	**----**	<0.0004	**----**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	**----**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	**----**	**----**
Chromium	7440-47-3	2	mg/kg	**17**	**17**	**12**	**----**	**----**
Copper	7440-50-8	5	mg/kg	**22**	**11**	**8**	**----**	**----**
Lead	7439-92-1	5	mg/kg	**35**	**18**	**9**	**----**	**----**
Nickel	7440-02-0	2	mg/kg	**13**	**7**	**3**	**----**	**----**
Zinc	7440-66-6	5	mg/kg	**92**	**32**	**17**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS - Continued									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		**80**	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		**340**	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**420**	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		**260**	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		**200**	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**460**	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		**260**	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**3.7**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.2**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.4**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.7**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	**14.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**6.1**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**86.6**	**86.1**	**92.0**	----	----
Toluene-D8	2037-26-5	0.5	%		**87.5**	**80.7**	**87.6**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH12A_1.0-1.2	R-BH35_0.05-0.2	R-BH35_1.9-2.0	Trip Blank NULL	Trip Spike 6 NULL
				Sampling date / time	20-Dec-2023 00:00	21-Dec-2023 00:00	21-Dec-2023 00:00	15-Dec-2023 00:00	15-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2344603-011	ES2344603-014	ES2344603-016	ES2344603-019	ES2344603-020
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.5	%		83.8	82.1	81.3	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.6	82.8	80.7	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		87.9	89.2	86.8	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		78.7	70.8	68.4	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.7	96.4	95.0	----	----
Anthracene-d10	1719-06-8	0.5	%		101	96.6	95.5	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		97.8	94.0	92.6	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		88.8	88.3	94.2	107	94.3
Toluene-D8	2037-26-5	0.2	%		87.4	80.7	87.7	103	88.9
4-Bromofluorobenzene	460-00-4	0.2	%		74.6	73.9	75.1	84.0	76.6
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		97.7	101	96.6	----	----
13C8-PFOA	----	0.0002	%		103	103	104	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Control Spike 6 NULL	----	----	----	----
				Sampling date / time	15-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2344603-021	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		**4.9**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		**5.6**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**5.9**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		**2.3**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		**18.7**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		**8.2**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**105**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**104**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**86.1**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231219 NULL	QC300_20231220 NULL	QC300_20231221 NULL	----	----
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	21-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344603-004	ES2344603-013	ES2344603-018	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	**0.020**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		----	----	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		----	----	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L		----	----	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		----	----	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		----	----	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		----	----	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		----	----	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		----	----	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		----	----	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		----	----	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		----	----	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		----	----	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		----	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		----	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		----	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		----	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231219 NULL	QC300_20231220 NULL	QC300_20231221 NULL	----	----
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	21-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344603-004	ES2344603-013	ES2344603-018	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	1.0	µg/L		----	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		----	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		----	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		----	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		----	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		----	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		----	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		----	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		----	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		----	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		----	<1.0	<1.0	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		----	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		----	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		----	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		----	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		----	<50	<50	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		----	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		----	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		----	<100	<100	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231219 NULL	QC300_20231220 NULL	QC300_20231221 NULL	----	----
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	21-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344603-004	ES2344603-013	ES2344603-018	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		----	<100	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		----	<100	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	<1	----	----
Toluene	108-88-3	2	µg/L		----	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L		----	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L		----	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	<5	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	<0.01	<0.01	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	<0.01	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.01	<0.01	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231219 NULL	QC300_20231220 NULL	QC300_20231221 NULL	----	----
				Sampling date / time	19-Dec-2023 00:00	20-Dec-2023 00:00	21-Dec-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2344603-004	ES2344603-013	ES2344603-018	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	<0.01	<0.01	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	**25.6**	**23.9**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	**48.6**	**45.0**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	**44.2**	**40.4**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	**55.6**	**54.8**	----	----
Anthracene-d10	1719-06-8	1.0	%		----	**58.1**	**55.8**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	**63.5**	**61.0**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	**118**	**109**	----	----
Toluene-D8	2037-26-5	2	%		----	**109**	**91.2**	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	**106**	**98.8**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	**96.9**	**99.0**	----	----
13C8-PFOA	----	0.02	%		----	**96.5**	**94.9**	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	A-TP13_0.0-0.2 - 19-Dec-2023 00:00	A soil sample.
EA200: Description	ACM-TP18_0.0-0.2 - 20-Dec-2023 00:00	A soil sample.
EA200: Description	ACM-BH12A_0.0-0.2 - 20-Dec-2023 00:00	A soil sample.
EA200: Description	R-BH35_0.05-0.2 - 21-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2344603**	Page	: 1 of 19
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 21-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 27-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 21		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515759)									
ES2344316-021	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	9	28.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	17	19	14.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	60	76	23.8	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	228	228	0.0	0% - 20%
ES2344603-014	R-BH35_0.05-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	17	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	10	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	17	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	32	32	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5515764)									
ES2344375-005	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	11.9	11.9	0.0	0% - 50%
ES2344714-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	13.4	14.0	4.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515760)									
ES2344316-021	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2344603-014	R-BH35_0.05-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5515307)									
ES2344603-005	ACM-TP18_0.0-0.2	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5515307)									
ES2344603-005	ACM-TP18_0.0-0.2	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5515307)									
ES2344603-005	ACM-TP18_0.0-0.2	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5515307) - continued									
ES2344603-005	ACM-TP18_0.0-0.2	EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5515307)									
ES2344603-005	ACM-TP18_0.0-0.2	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513089)									
ES2344545-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2344603-014	R-BH35_0.05-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513089)									
ES2344545-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2344603-014	R-BH35_0.05-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513089) - continued									
ES2344603-014	R-BH35_0.05-0.2	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513090)									
ES2344545-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344603-014	R-BH35_0.05-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5515308)									
ES2344603-005	ACM-TP18_0.0-0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513090)									
ES2344545-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2344603-014	R-BH35_0.05-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5515308)									
ES2344603-005	ACM-TP18_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5515308)									
ES2344603-005	ACM-TP18_0.0-0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5516328)									
ES2344500-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2344712-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0086	0.0102	17.2	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0668	0.0694	3.9	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5516328)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5516328) - continued									
ES2344500-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0015	0.0016	8.7	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0013	0.0014	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2344712-004	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0008	0.0009	12.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0011	0.0012	14.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0007	0.0008	17.7	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0009	0.0010	16.8	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5516328)									
ES2344500-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	0.0062	0.0068	8.0	0% - 50%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2344712-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	0.0119	0.0114	3.7	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	0.0144	0.0142	1.4	0% - 20%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	0.0022	0.0021	5.2	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5521301)									
ES2344603-004	QC300_20231219 NULL	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2344852-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0006	140	No Limit
ES2344852-001	Anonymous	EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5521301) - continued									
ES2344852-001	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.161	0.164	1.6	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.182	0.185	1.4	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5519275)									
ES2344301-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
ES2344603-013	QC300_20231220 NULL	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5516594)									
ES2344290-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2344665-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5520055)									
CA2308116-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2344795-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5516594)									
ES2344290-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2344665-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5520055)									
CA2308116-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2344795-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5516594)									
ES2344290-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2344665-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 5520055)									
CA2308116-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5520055) - continued									
CA2308116-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2344795-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515759)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	112	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	96.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	132	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	108	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	117	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	103	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515760)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	105	70.0	125
EP074D: Fumigants (QCLot: 5515307)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	98.8	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.2	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	99.6	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	98.9	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	103	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515307)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	98.4	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	98.5	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	92.8	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	102	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	97.4	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	97.7	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	97.2	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	89.3	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.7	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	98.1	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	98.3	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	99.3	59.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515307) - continued								
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	102	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	100	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	103	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	102	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	100	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	101	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	105	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	106	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	99.9	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	98.7	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	107	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5515307)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	99.9	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	101	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	102	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	103	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	106	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	109	52.0	122
EP074G: Trihalomethanes (QCLot: 5515307)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	103	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	100	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	102	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	101	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5513089)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	115	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	118	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	112	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	118	67.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5513089) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	79.4	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	111	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	113	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	106	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	98.6	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	100	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	96.4	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	44.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513089)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	123	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	116	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	118	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	117	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	115	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	113	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	121	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	118	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	120	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	122	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	105	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	116	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	114	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	102	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.9	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513090)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	93.8	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	98.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515308)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	97.2	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513090)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513090) - continued								
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	91.8	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	97.6	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515308)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	104	72.4	133
EP080: BTEXN (QCLot: 5515308)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.6	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	81.0	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.4	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.5	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.3	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.1	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5516328)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.7	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516328)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	89.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5516328)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	92.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	96.0	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	118	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	112	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5521301)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.9	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5521301) - continued								
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.6	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5519275)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.7	77.0	111
EP075(SIM)A: Phenolic Compounds (QCLot: 5513141)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	31.2	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	54.8	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	52.2	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	53.8	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	59.9	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	73.1	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	57.6	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	58.7	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	68.3	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	58.6	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	69.9	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	37.7	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513141)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	61.3	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.1	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	64.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	65.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	70.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	73.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	73.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	79.1	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	74.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	72.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	98.1	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	76.9	63.3	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513141) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	71.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	71.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	70.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513142)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	63.3	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	93.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5516594)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.1	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5520055)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513142)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	70.7	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	75.9	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	65.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5516594)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.4	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5520055)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.2	75.0	127
EP080: BTEXN (QCLot: 5516594)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.4	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	96.0	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	102	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	106	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.0	75.5	124
EP080: BTEXN (QCLot: 5520055)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	79.3	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	85.7	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.9	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.3	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.2	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	75.5	124

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5516316)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	88.7	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	87.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516316)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.4	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.4	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5516316)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	100	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	112	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	90.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	91.9	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515759)							
ES2344316-021	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	98.5	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	95.1	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	91.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	76.9	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515760)							
ES2344316-021	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.4	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5515307)							
ES2344603-005	ACM-TP18_0.0-0.2	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	96.6	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	89.6	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5515307)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074F: Halogenated Aromatic Compounds (QCLot: 5515307) - continued							
ES2344603-005	ACM-TP18_0.0-0.2	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	91.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513089)							
ES2344545-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	119	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	121	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	96.2	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.6	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	90.7	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513089)							
ES2344545-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	117	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	128	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513090)							
ES2344545-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	73.3	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	107	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5515308)							
ES2344603-005	ACM-TP18_0.0-0.2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	71.9	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513090)							
ES2344545-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	93.5	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	110	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	88.1	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5515308)							
ES2344603-005	ACM-TP18_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	70.1	61.1	142
EP080: BTEXN (QCLot: 5515308)							
ES2344603-005	ACM-TP18_0.0-0.2	EP080: Benzene	71-43-2	2.5 mg/kg	82.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	92.4	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.4	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.3	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	80.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	87.2	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5516328)							
ES2344500-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	87.4	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	80.6	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	98.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516328)							
ES2344500-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	87.7	71.0	135

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5516328) - continued							
ES2344500-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	109	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	113	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	101	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	108	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5516328)							
ES2344500-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	90.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	127	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	106	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	100.0	69.2	143

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5521301)							
ES2344603-013	QC300_20231220 NULL	EG020A-T: Arsenic	7440-38-2	1 mg/L	90.3	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	106	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	92.4	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	92.7	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	89.8	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	87.0	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5519275)							
ES2344301-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	86.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5516594)							
ES2344290-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	91.6	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5520055)							
CA2308116-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	70.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5516594)							
ES2344290-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	91.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5520055)							
CA2308116-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	71.4	70.0	130
EP080: BTEXN (QCLot: 5516594)							
ES2344290-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	96.0	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5516594) - continued							
ES2344290-001	Anonymous	EP080: ortho-Xylene	95-47-6	25 µg/L	101	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	105	70.0	130
EP080: BTEXN (QCLot: 5520055)							
CA2308116-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	77.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	81.7	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	88.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	89.7	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	89.9	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.7	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2344603**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 21-Dec-2023
Site	: Wyong	Issue Date	: 02-Sep-2024
Sampler	: ----	No. of samples received	: 21
Order number	: 60709736	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) A-TP13_0.0-0.2	**19-Dec-2023**	**----**	----	----	**27-Dec-2023**	02-Jan-2024	✓
Soil Glass Jar - Unpreserved (EA055) ACM-TP18_0.0-0.2, ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**----**	----	----	**27-Dec-2023**	03-Jan-2024	✓
Soil Glass Jar - Unpreserved (EA055) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**----**	----	----	**27-Dec-2023**	04-Jan-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-TP13_0.0-0.2	**19-Dec-2023**	**----**	----	----	**27-Dec-2023**	16-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM-TP18_0.0-0.2, ACM-BH12A_0.0-0.2	**20-Dec-2023**	**----**	----	----	**27-Dec-2023**	17-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH35_0.05-0.2	**21-Dec-2023**	**----**	----	----	**27-Dec-2023**	18-Jun-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
A-TP13_0.0-0.2		**19-Dec-2023**	**----**	----	**----**	**27-Dec-2023**	16-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
ACM-TP18_0.0-0.2,	ACM-BH12A_0.0-0.2	**20-Dec-2023**	**----**	----	**----**	**27-Dec-2023**	17-Jun-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)								
R-BH35_0.05-0.2		**21-Dec-2023**	**----**	----	**----**	**27-Dec-2023**	18-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
A-TP13_0.0-0.2		**19-Dec-2023**	**28-Dec-2023**	16-Jun-2024	✓	**28-Dec-2023**	16-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
ACM-TP18_0.0-0.2, ACM-BH12A_0.5-0.6,	ACM-TP18_1.9-2.0, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	17-Jun-2024	✓	**28-Dec-2023**	17-Jun-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jun-2024	✓	**28-Dec-2023**	18-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
A-TP13_0.0-0.2		**19-Dec-2023**	**28-Dec-2023**	16-Jan-2024	✓	**29-Dec-2023**	16-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)								
ACM-TP18_0.0-0.2, ACM-BH12A_0.5-0.6,	ACM-TP18_1.9-2.0, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	17-Jan-2024	✓	**29-Dec-2023**	17-Jan-2024	✓
Soil Glass Jar - Unpreserved (EG035T)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jan-2024	✓	**29-Dec-2023**	18-Jan-2024	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
ACM-TP18_0.0-0.2, ACM-BH12A_0.5-0.6,	ACM-TP18_1.9-2.0, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**27-Dec-2023**	27-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP074)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**27-Dec-2023**	28-Dec-2023	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
ACM-TP18_0.0-0.2, ACM-BH12A_0.5-0.6,	ACM-TP18_1.9-2.0, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**27-Dec-2023**	27-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP074)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**27-Dec-2023**	28-Dec-2023	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
ACM-TP18_0.0-0.2, ACM-BH12A_0.5-0.6,	ACM-TP18_1.9-2.0, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**27-Dec-2023**	27-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP074)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**27-Dec-2023**	28-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) ACM-TP18_0.0-0.2, ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**27-Dec-2023**	27-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP074) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**27-Dec-2023**	28-Dec-2023	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM-TP18_0.0-0.2	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**02-Jan-2024**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	04-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM-TP18_0.0-0.2	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**02-Jan-2024**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**29-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	04-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) Trip Blank - NULL	**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) ACM-TP18_0.0-0.2, ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**27-Dec-2023**	03-Jan-2024	✓	**27-Dec-2023**	03-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) ACM-TP18_0.0-0.2, ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	04-Jan-2024	✓	**27-Dec-2023**	04-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	04-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank - NULL		**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**27-Dec-2023**	03-Jan-2024	✓	**27-Dec-2023**	03-Jan-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
Soil Glass Jar - Unpreserved (EP071)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**28-Dec-2023**	03-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
Soil Glass Jar - Unpreserved (EP080)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	04-Jan-2024	✓	**27-Dec-2023**	04-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP071)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	04-Jan-2024	✓	**30-Dec-2023**	06-Feb-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank - NULL,	Trip Spike 6 - NULL,	**15-Dec-2023**	**27-Dec-2023**	29-Dec-2023	✓	**27-Dec-2023**	29-Dec-2023	✓
Trip Control Spike 6 - NULL								
Soil Glass Jar - Unpreserved (EP080)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**27-Dec-2023**	03-Jan-2024	✓	**27-Dec-2023**	03-Jan-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
Soil Glass Jar - Unpreserved (EP080)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**27-Dec-2023**	04-Jan-2024	✓	**27-Dec-2023**	04-Jan-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**28-Dec-2023**	17-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
HDPE Soil Jar (EP231X)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**28-Dec-2023**	17-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
HDPE Soil Jar (EP231X)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
ACM-TP18_0.0-0.2,	ACM-TP18_1.9-2.0,	**20-Dec-2023**	**28-Dec-2023**	17-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
ACM-BH12A_0.5-0.6,	ACM-BH12A_1.0-1.2							
HDPE Soil Jar (EP231X)								
R-BH35_0.05-0.2,	R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) ACM-TP18_0.0-0.2, ACM-TP18_1.9-2.0, ACM-BH12A_0.5-0.6, ACM-BH12A_1.0-1.2	**20-Dec-2023**	**28-Dec-2023**	17-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓
HDPE Soil Jar (EP231X) R-BH35_0.05-0.2, R-BH35_1.9-2.0	**21-Dec-2023**	**28-Dec-2023**	18-Jun-2024	✓	**03-Jan-2024**	06-Feb-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231219 - NULL	**19-Dec-2023**	**02-Jan-2024**	16-Jun-2024	✓	**02-Jan-2024**	16-Jun-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231220 - NULL	**20-Dec-2023**	**02-Jan-2024**	17-Jun-2024	✓	**02-Jan-2024**	17-Jun-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20231221 - NULL	**21-Dec-2023**	**02-Jan-2024**	18-Jun-2024	✓	**02-Jan-2024**	18-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231219 - NULL	**19-Dec-2023**	**----**	----	----	**03-Jan-2024**	16-Jan-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231220 - NULL	**20-Dec-2023**	**----**	----	----	**03-Jan-2024**	17-Jan-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20231221 - NULL	**21-Dec-2023**	**----**	----	----	**03-Jan-2024**	18-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**29-Dec-2023**	05-Feb-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**29-Dec-2023**	05-Feb-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**29-Dec-2023**	05-Feb-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**28-Dec-2023**	05-Feb-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**28-Dec-2023**	05-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231220 - NULL	**20-Dec-2023**	**02-Jan-2024**	03-Jan-2024	✓	**02-Jan-2024**	03-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231221 - NULL	**21-Dec-2023**	**02-Jan-2024**	04-Jan-2024	✓	**02-Jan-2024**	04-Jan-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	27-Dec-2023	✓	**28-Dec-2023**	05-Feb-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	28-Dec-2023	✓	**28-Dec-2023**	05-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231220 - NULL	**20-Dec-2023**	**02-Jan-2024**	03-Jan-2024	✓	**02-Jan-2024**	03-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231221 - NULL	**21-Dec-2023**	**02-Jan-2024**	04-Jan-2024	✓	**02-Jan-2024**	04-Jan-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231220 - NULL	**20-Dec-2023**	**02-Jan-2024**	03-Jan-2024	✓	**02-Jan-2024**	03-Jan-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20231221 - NULL	**21-Dec-2023**	**02-Jan-2024**	04-Jan-2024	✓	**02-Jan-2024**	04-Jan-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	17-Jun-2024	✓	**28-Dec-2023**	17-Jun-2024	✓
HDPE (no PTFE) (EP231X) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	18-Jun-2024	✓	**28-Dec-2023**	18-Jun-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	17-Jun-2024	✓	**28-Dec-2023**	17-Jun-2024	✓
HDPE (no PTFE) (EP231X) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	18-Jun-2024	✓	**28-Dec-2023**	18-Jun-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	17-Jun-2024	✓	**28-Dec-2023**	17-Jun-2024	✓
HDPE (no PTFE) (EP231X) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	18-Jun-2024	✓	**28-Dec-2023**	18-Jun-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) QC300_20231220 - NULL	**20-Dec-2023**	**27-Dec-2023**	17-Jun-2024	✓	**28-Dec-2023**	17-Jun-2024	✓
HDPE (no PTFE) (EP231X) QC300_20231221 - NULL	**21-Dec-2023**	**27-Dec-2023**	18-Jun-2024	✓	**28-Dec-2023**	18-Jun-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	8	**37.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2344603**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 21-Dec-2023 19:50	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 05-Jan-2024	Scheduled Reporting Date	: **05-Jan-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.8, 11.5, 12.6'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 21 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates corrected method code for asbestos.
- **Asbestos bags have been contaminated by ice water as bags were not sealed properly.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2344603-004 : [19-Dec-2023] : QC300_20231219 - NULL
ES2344603-013 : [20-Dec-2023] : QC300_20231220 - NULL
ES2344603-018 : [21-Dec-2023] : QC300_20231221 - NULL
ES2344603-021 : [15-Dec-2023] : Trip Control Spike 6 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2344603-001	19-Dec-2023 00:00	A-TP13_0.0-0.2		✓	✓		✓	
ES2344603-002	19-Dec-2023 00:00	A-TP13_0.9-1.0	✓					
ES2344603-003	19-Dec-2023 00:00	A-TP13_1.9-2.0	✓					
ES2344603-005	20-Dec-2023 00:00	ACM-TP18_0.0-0.2		✓	✓	✓		✓
ES2344603-006	20-Dec-2023 00:00	ACM-TP18_0.9-1.0	✓					
ES2344603-007	20-Dec-2023 00:00	ACM-TP18_1.9-2.0		✓		✓		✓
ES2344603-008	20-Dec-2023 00:00	ACM-TP18_2.9-3.0	✓					
ES2344603-009	20-Dec-2023 00:00	ACM-BH12A_0.0-0.2			✓			
ES2344603-010	20-Dec-2023 00:00	ACM-BH12A_0.5-0.6		✓		✓		✓
ES2344603-011	20-Dec-2023 00:00	ACM-BH12A_1.0-1.2		✓		✓		✓
ES2344603-012	20-Dec-2023 00:00	ACM-BH12A_1.5-1.7	✓					
ES2344603-014	21-Dec-2023 00:00	R-BH35_0.05-0.2		✓	✓	✓		✓
ES2344603-015	21-Dec-2023 00:00	R-BH35_0.9-1.0	✓					
ES2344603-016	21-Dec-2023 00:00	R-BH35_1.9-2.0		✓		✓		✓
ES2344603-017	21-Dec-2023 00:00	R-BH35_2.95-3.0	✓					

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2344603-005	20-Dec-2023 00:00	ACM-TP18_0.0-0.2	✓		
ES2344603-007	20-Dec-2023 00:00	ACM-TP18_1.9-2.0	✓		
ES2344603-010	20-Dec-2023 00:00	ACM-BH12A_0.5-0.6	✓		
ES2344603-011	20-Dec-2023 00:00	ACM-BH12A_1.0-1.2	✓		

			SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2344603-014	21-Dec-2023 00:00	R-BH35_0.05-0.2	✓		
ES2344603-016	21-Dec-2023 00:00	R-BH35_1.9-2.0	✓		
ES2344603-019	15-Dec-2023 00:00	Trip Blank NULL			✓
ES2344603-020	15-Dec-2023 00:00	Trip Spike 6 NULL		✓	
ES2344603-021	15-Dec-2023 00:00	Trip Control Spike 6...		✓	

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - W-02T 8 metals (Total)
ES2344603-004	19-Dec-2023 00:00	QC300_20231219 NULL	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2344603-013	20-Dec-2023 00:00	QC300_20231220 NULL	✓	✓	
ES2344603-018	21-Dec-2023 00:00	QC300_20231221 NULL	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- Chromatogram (CHROM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- Chromatogram (CHROM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

STEPHEN RANDALL

- *AU Certificate of Analysis - NATA (COA)	Email	Stephen.Randall@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Stephen.Randall@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Stephen.Randall@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Stephen.Randall@aecom.com
- Chain of Custody (CoC) (COC)	Email	Stephen.Randall@aecom.com
- Chromatogram (CHROM)	Email	Stephen.Randall@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	Stephen.Randall@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE: ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com, stephen.randall@aecom.com, kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): 5 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No NA
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay,%	TRH, BTEXN, PAH, and Metals	OC, OP, PCB	TRH, BTEXN, Metals	C6-C9 / BTEXN	Phenols	VOCs	PFAS (short suite)	CHCs	Metals	HOLD
1	A-TP13_0.0-0.2	S	19/12/23	-	Jar, Ziplock bag	1,1		X										X	
2	A-TP13_0.9-1.0	S	19/12/23	-	Jar, Ziplock bag	1,1													X
3	A-TP13_1.9-2.0	S	19/12/23	-	Jar, Ziplock bag	1,1													X
4	QC300_20231219	W	19/12/23	-	AG , P , V	1 ,1, 2												X	
5	ACM-TP18_0.0-0.2	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1		X		X				X		X	X		
6	ACM-TP18_0.9-1.0	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1													X
7	ACM-TP18_1.9-2.0	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1, 2				X				X		X	X		
8	ACM-TP18_2.9-3.0	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
9	ACM-BH12A_0.0-0.2	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1		X											
10	ACM-BH12A_0.5-0.6	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X		
11	ACM-BH12A_1.0-1.2	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X		
12	ACM-BH12A_1.5-1.7	S	20/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
13	QC300_20231220	W	20/12/23	-	AG , P , V, PFAS bottle	1 ,1, 2, 2				X						X			
14	R-BH35_0.0-0.2	S	21/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1		X		X				X		X	X		
15	R-BH35_0.9-1.0	S	21/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
16	R-BH35_1.9-2.0	S	21/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1				X				X		X	X		
17	R-BH35_2.9-3.0	S	21/12/23	-	Jar, Ziplock bag, PFAS Jar	1 ,1 ,1													X
18	QC300_20231221	W	21/12/23	-	AG , P , V, PFAS bottle	1 ,1, 2, 2				X				X		X	X		
19	Trip Blank/ Trip Spike	S	lab prepared		Jar	1													
20	Trip Spike																		
21	Field Duplicate Control																		

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected",
Extra volume for QC or trace LORs etc

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY	
Name: Eric Serttas	Date: 22/12/23	Name:	Date:	Name: Zach	Date: 22/12/23
Of:	Time: AM	Of:	Time:	Of: ALS	Time: 8pm

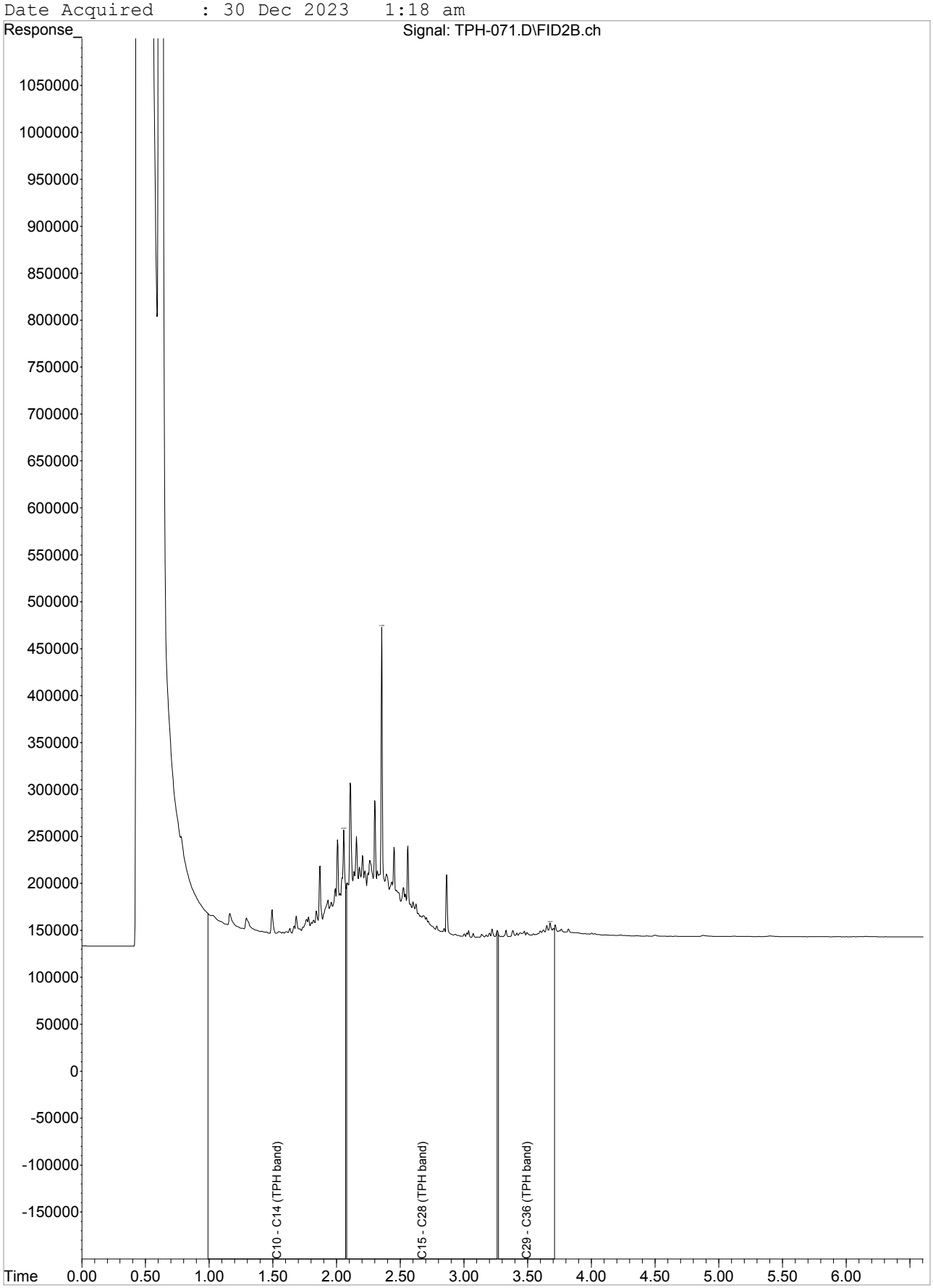
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

Subcon / Forwarded Lab / Split WO:
Lab / Analysis: Newcastle - Asbestos
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

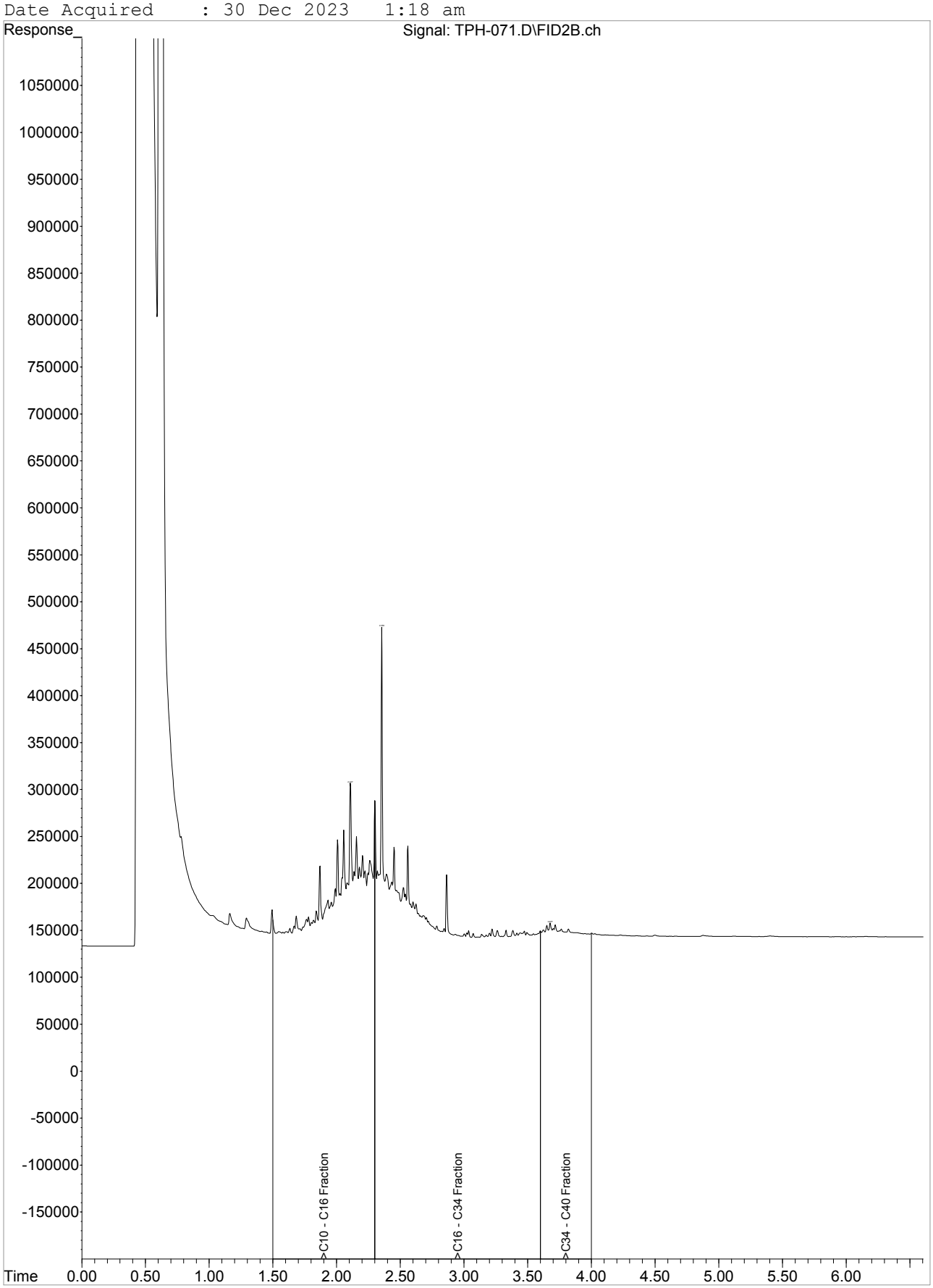
Environmental Division
Sydney
Work Order Reference
ES2344603

Telephone : +61-2-8784 8555

Fraction Scheme : Legacy
Data File : TPH-071.D
Laboratory Number: ES2344603-011
Sample ID : ACM-BH12A_1.0-1.2
Date Acquired : 30 Dec 2023 1:18 am



Fraction Scheme : NEPM
Data File : TPH-071.D
Laboratory Number: ES2344603-011
Sample ID : ACM-BH12A_1.0-1.2
Date Acquired : 30 Dec 2023 1:18 am



CERTIFICATE OF ANALYSIS

Work Order	: **ES2344617**	Page	: 1 of 10
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023 19:30
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 29-Dec-2023 15:33
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of sample ACM-BH05_0.9-1.0 have been confirmed by re-extraction and re-analysis.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- EP068: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP066 : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344617-001	ES2344617-002	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**9.2**	**25.8**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--		**-**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-		**No**	----	----	----	----
Sample weight (dry)	----	0.01	g		**590**	----	----	----	----
Synthetic Mineral Fibre	----	-	--		**No**	----	----	----	----
Organic Fibre	----	-	--		**No**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		**B.SCHRADER**	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g		<0.0004	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)		<0.001	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g		<0.1	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)		<0.01	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg		**0.590**	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g		<0.0004	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**12**	**38**	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		**11**	**12**	----	----	----
Copper	7440-50-8	5	mg/kg		**89**	**57**	----	----	----
Lead	7439-92-1	5	mg/kg		**54**	**223**	----	----	----
Nickel	7440-02-0	2	mg/kg		**12**	**10**	----	----	----
Zinc	7440-66-6	5	mg/kg		**123**	**485**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
			Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2344617-001	ES2344617-002	--------	--------	--------
				Result	Result	----	----	----
EG035T: Total Recoverable Mercury by FIMS - Continued								
Mercury	7439-97-6	0.1	mg/kg	<0.1	**0.2**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.2	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.25	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.25	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.25	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.25	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.25	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.25	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.25	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.25	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	<0.08	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.25	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.25	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.25	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.25	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.25	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.25	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.25	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	<0.15	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.25	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.25	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.25	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<1.0	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.25	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<1.0	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344617-001	ES2344617-002	--------	--------	--------
					Result	Result	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.08	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.08	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.25	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.25	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<1.0	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.25	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.25	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.25	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<1.0	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.25	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.25	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.25	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<1.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.25	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.25	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.25	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.25	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.25	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.25	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.25	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.25	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344617-001	ES2344617-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	**2.5**	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	**11.6**	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	**11.1**	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**43.3**	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	**18.1**	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**0.6**	**31.2**	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**0.5**	**34.9**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	**17.3**	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	**15.5**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	**12.8**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	**5.1**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	**11.1**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	**3.6**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	**1.5**	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	**4.2**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**1.1**	**224**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344617-001	ES2344617-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	**16.7**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**16.7**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**16.7**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	**1550**	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	**550**	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	**2100**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	**160**	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	**1880**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**260**	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**2300**	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	**160**	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH05_0.1-0.2	ACM-BH05_0.9-1.0	----	----	----
				Sampling date / time	07-Dec-2023 00:00	07-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2344617-001	ES2344617-002	--------	--------	--------
					Result	Result	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**84.4**	**79.9**	**----**	**----**	**----**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**80.0**	**110**	**----**	**----**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**92.2**	**81.4**	**----**	**----**	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**102**	**105**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**105**	**108**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**82.9**	**103**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**108**	**111**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**111**	**111**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**110**	**115**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**92.1**	**82.8**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**104**	**90.7**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**111**	**100**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM-BH05_0.1-0.2 - 07-Dec-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2344617**	Page	: 1 of 10
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023
Order number	: 60709736	Date Analysis Commenced	: 22-Dec-2023
C-O-C number	: ----	Issue Date	: 29-Dec-2023
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5515158)									
ES2344222-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	16	12.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	18	10.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	29	35.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	34	25.9	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5515162)									
ES2344617-001	ACM-BH05_0.1-0.2	EA055: Moisture Content	----	0.1 (1.0)*	%	9.2	10.2	9.8	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5515159)									
ES2344222-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5513260)									
ES2341790-023	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513259)									
ES2341790-023	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5513259) - continued									
ES2341790-023	Anonymous	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5513259)									
ES2341790-023	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513258)									
ES2341790-023	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5513258) - continued									
ES2341790-023	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5513258)									
ES2341790-023	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513257)									
ES2341790-023	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5513266) - continued									
ES2344441-026	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513257)									
ES2341790-023	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2344441-026	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5513266)									
ES2344441-025	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2344441-026	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515158)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	91.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	93.3	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	109	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	104	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	92.5	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	93.6	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	84.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515159)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	96.6	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513260)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	80.7	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.0	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	101	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	85.1	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.9	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5513258)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	115	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	118	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	108	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	108	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	112	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	115	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	113	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	115	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	103	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5513258) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	99.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	58.4	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513258)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	113	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	111	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	109	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	114	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	116	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	116	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	119	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	108	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	123	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	109	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	103	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	105	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513257)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	112	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.0	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	96.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513266)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.7	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513257)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	113	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	97.7	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	94.4	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513266)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.7	72.4	133
EP080: BTEXN (QCLot: 5513266)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.2	76.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5513266) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.6	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.6	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	102	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.7	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.9	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5515158)							
ES2344222-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	90.5	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.9	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	91.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.3	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	91.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5515159)							
ES2344222-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	87.3	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5513260)							
ES2341790-023	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.9	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5513259)							
ES2341790-023	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	94.7	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	99.8	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.4	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	97.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	89.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259)							
ES2341790-023	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	81.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	97.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5513259) - continued							
ES2341790-023	Anonymous	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	94.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5513258)							
ES2341790-023	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	127	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	126	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	116	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	115	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	105	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5513258)							
ES2341790-023	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	125	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	126	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513257)							
ES2341790-023	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	106	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	121	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	128	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	86.4	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513257)							
ES2341790-023	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	115	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	128	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	122	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	85.3	61.1	142
EP080: BTEXN (QCLot: 5513266)							
ES2344441-025	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	89.8	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	80.1	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.6	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.3	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	87.3	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	87.6	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2344617**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Dec-2023
Site	: Wyong	Issue Date	: 29-Dec-2023
Sampler	: AECOM Geotech Team	No. of samples received	: 3
Order number	: 60709736	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	----	----	----	27-Dec-2023	21-Dec-2023	**6**
EP066: Polychlorinated Biphenyls (PCB)						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP068A: Organochlorine Pesticides (OC)						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2	22-Dec-2023	21-Dec-2023	**1**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	29-Dec-2023	21-Dec-2023	**8**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	----	----	----
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	29-Dec-2023	21-Dec-2023	**8**
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	22-Dec-2023	21-Dec-2023	**1**	29-Dec-2023	21-Dec-2023	**8**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	21-Dec-2023	×
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM-BH05_0.1-0.2	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	04-Jun-2024	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200N)							
ACM-BH05_0.1-0.2	**07-Dec-2023**	**----**	----	----	**27-Dec-2023**	04-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**27-Dec-2023**	04-Jun-2024	✓	**27-Dec-2023**	04-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**27-Dec-2023**	04-Jan-2024	✓	**28-Dec-2023**	04-Jan-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068)							
ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**27-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP068)							
ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**29-Dec-2023**	21-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**29-Dec-2023**	21-Dec-2023	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM-BH05_0.1-0.2	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**29-Dec-2023**	21-Dec-2023	×
Soil Glass Jar - Unpreserved (EP071) ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**28-Dec-2023**	31-Jan-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**29-Dec-2023**	21-Dec-2023	×
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) ACM-BH05_0.1-0.2, ACM-BH05_0.9-1.0	**07-Dec-2023**	**22-Dec-2023**	21-Dec-2023	×	**29-Dec-2023**	21-Dec-2023	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2344617**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: ----	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 08-Dec-2023 19:30	Issue Date	: 22-Dec-2023
Client Requested Due Date	: 29-Dec-2023	Scheduled Reporting Date	: **29-Dec-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 14.0, 18.0, 17.1'C
Receipt Detail	:	No. of samples received / analysed	: 3 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - S-19 TRH/BTEXN/PAH/Phi/OC/OP/PCB/8 metals
ES2344617-001	07-Dec-2023 00:00	ACM-BH05_0.1-0.2		✓	✓	✓
ES2344617-002	07-Dec-2023 00:00	ACM-BH05_0.9-1.0		✓		✓
ES2344617-003	07-Dec-2023 00:00	ACM-BH05_1.95-2.1	✓			

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA055: Moisture Content							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	----	21-Dec-2023	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	----	21-Dec-2023	08-Dec-2023	✓	22-Dec-2023	×
EP066: Polychlorinated Biphenyls (PCB)							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
EP068: Pesticides by GCMS							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
EP071: TRH - Semivolatile Fraction							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
EP075(SIM): PAH/Phenols (SIM)							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	30-Jan-2024	08-Dec-2023	✓	22-Dec-2023	×
EP080: TRH Volatiles/BTEX							
ACM-BH05_0.1-0.2	Soil Glass Jar - Unpreserved	21-Dec-2023	21-Dec-2023	08-Dec-2023	✓	22-Dec-2023	×
ACM-BH05_0.9-1.0	Soil Glass Jar - Unpreserved	21-Dec-2023	21-Dec-2023	08-Dec-2023	✓	22-Dec-2023	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- Chromatogram (CHROM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200N: Asbestos Quantification (non-NATA)

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W = Water)					CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	OS-C9 / BTEXN						HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	ACM-BH05_0.1-0.2	S	7/12/23	-	J , ZLB	2 ,1		X		X	X								
2	ACM-BH05_0.9-1.0	S	7/12/23	-	J , ZLB	2 ,1				X	X								
3	ACM-BH05_1.95-2.1	S	7/12/23	-	J , ZLB	2 ,1													

TAT

Subcon / Forward Lab / Split WO:
Lab / Analysis: Newcastle - Asbestos
Organised By / Date:
Relinquished By / Date:
Consignment / Courier:
WO No:
Attached By PO / Internal Sheet:

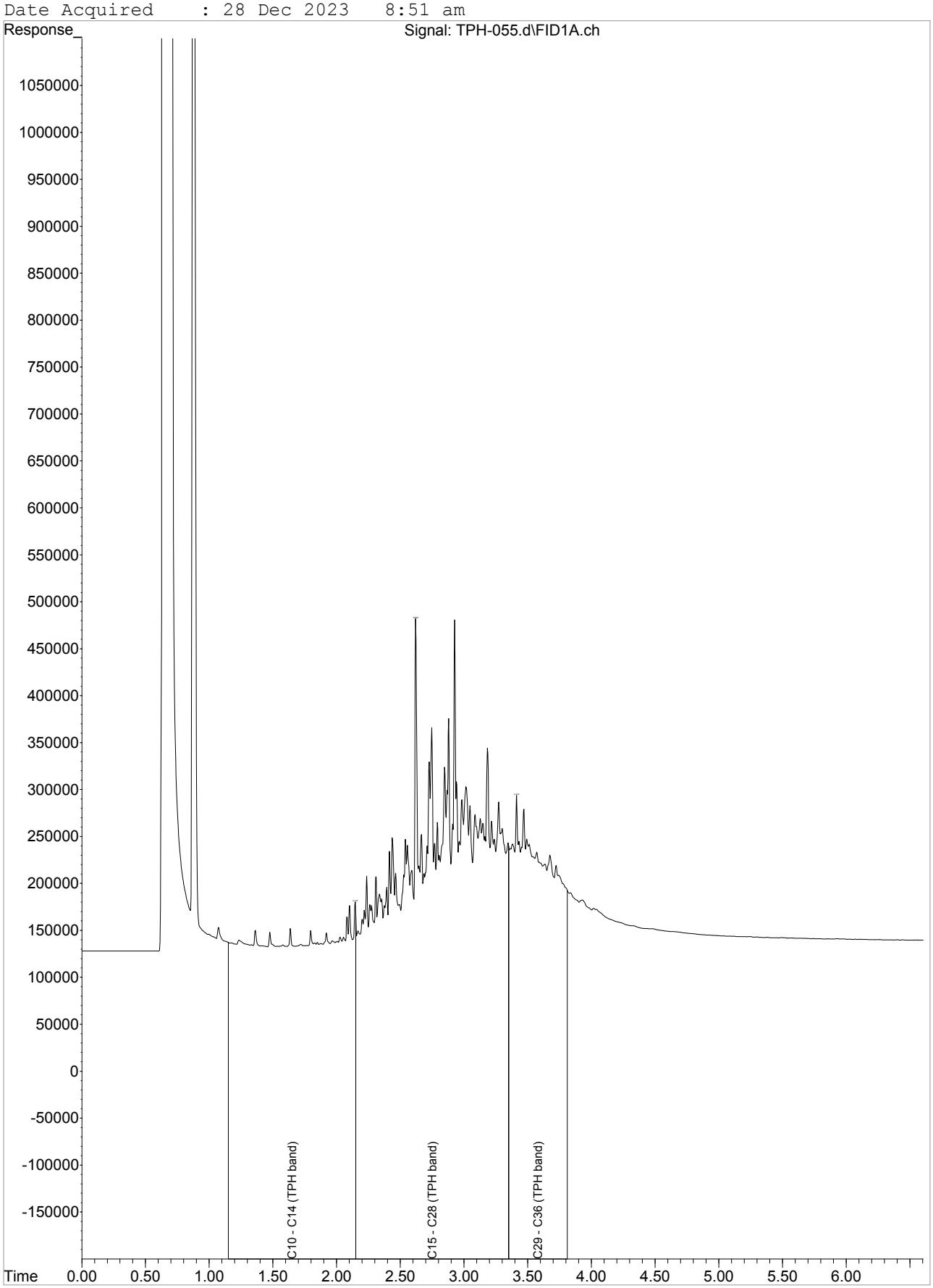
Environmental Division
Sydney
Work Order Reference
ES2344617

Telephone : +61-2-8784 8555

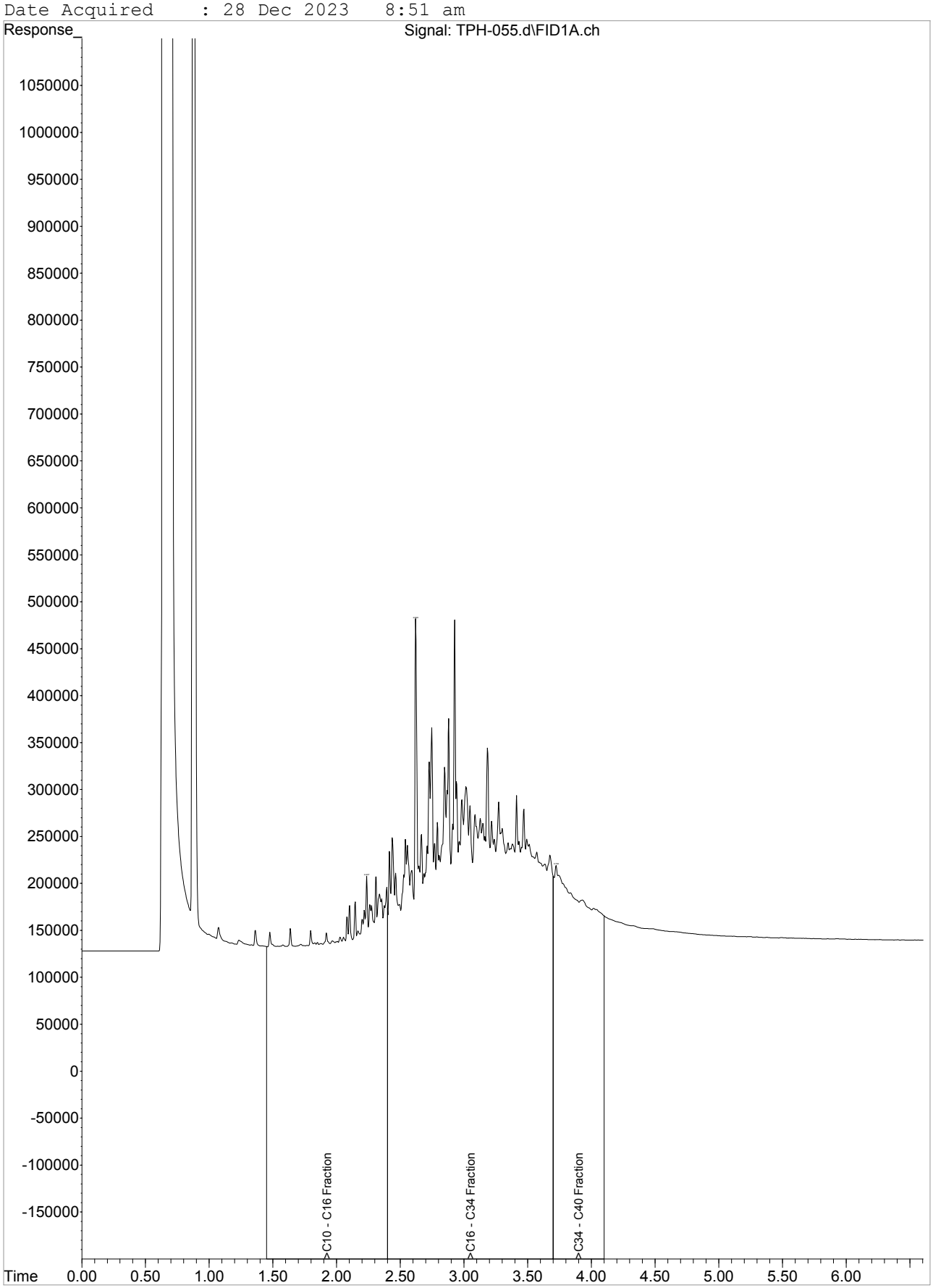
RELINQUISHED BY:		RECEIVED BY:		RECEIVED BY:		METHOD OF SHIPMENT:
Name: Eric Serttas	15/12/2023	Name: Jack	Date: 22/12/23	Name:	Date:	Con' Note No:
Of:	Time: PM	Of: AU	Time: 12pm	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

Fraction Scheme : Legacy
Data File : TPH-055.d
Laboratory Number: ES2344617-002
Sample ID : ACM-BH05_0.9-1.0
Date Acquired : 28 Dec 2023 8:51 am



Fraction Scheme : NEPM
Data File : TPH-055.d
Laboratory Number: ES2344617-002
Sample ID : ACM-BH05_0.9-1.0
Date Acquired : 28 Dec 2023 8:51 am



CERTIFICATE OF ANALYSIS

Work Order	: **ES2401099-AA**	Page	: 1 of 5
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023 11:30
Order number	: 90709736 - CDRL 400	Date Analysis Commenced	: 16-Jan-2024
C-O-C number	: ----	Issue Date	: 02-Sep-2024 12:20
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EG020A-F: Positive results for sample ES2401099 # 001 have been confirmed by reanalysis.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-019. All analysis results are as per the previous report.
- Amendment (24/01/2023): This report has been amended following the request to report specific samples (all QC300 samples) on a separate COA, received from Eric Serttas on 23/01/2024.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231105 NULL	QC300_20231205 NULL	----	----	----
				Sampling date / time	05-Nov-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2401099-001	ES2401099-002	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.002**	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20231105 NULL	QC300_20231205 NULL	----	----	----
				Sampling date / time	05-Nov-2023 00:00	05-Dec-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2401099-001	ES2401099-002	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**102**	**116**	----	----	----
Toluene-D8	2037-26-5	2	%		**99.8**	**103**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**118**	**124**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

CERTIFICATE OF ANALYSIS

Work Order	: **ES2401099-AB**	Page	: 1 of 3
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023 11:30
Order number	: 90709736 - CDRL 400	Date Analysis Commenced	: 18-Jan-2024
C-O-C number	: ----	Issue Date	: 02-Sep-2024 12:20
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020A-F: Positive results for sample ES2401099 # 001 have been confirmed by reanalysis.
- Amendment (02/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-019. All analysis results are as per the previous report.
- Amendment (24/01/2023): This report has been amended following the request to report specific samples (all QC300 samples) on a separate COA, received from Eric Serttas on 23/01/2024.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_BH09_2.1-2.45	A_BH09_1.5-1.95	A_BH09_3.0-3.45	R_BH34_4.5-4.95	R_BH34_3.0-3.3
			Sampling date / time	07-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2401099-006	ES2401099-009	ES2401099-010	ES2401099-015	ES2401099-016
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**8.3**	**6.9**	**5.7**	**6.2**	**5.9**
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	**177**	**80**	**117**	**65**	**45**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.5**	**14.4**	**15.4**	**38.1**	**15.8**
EA080: Resistivity								
Resistivity at 25°C	----	1	ohm cm	**5650**	**12500**	**8550**	**15400**	**22200**
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**110**	**90**	**180**	**120**	**20**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	**110**	**30**	**40**	**40**	**290**

QUALITY CONTROL REPORT

Work Order	: **ES2401099-AA**	Page	: 1 of 5
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Order number	: 90709736 - CDRL 400	Date Analysis Commenced	: 16-Jan-2024
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5549705)									
ES2400572-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.006	0.005	0.0	No Limit
ES2401268-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2400572-001	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.034	0.035	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5547016)									
ES2401099-001	QC300_20231105 NULL	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2401286-012	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5544733)									
CA2400295-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2401099-001	QC300_20231105 NULL	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5544733)									
CA2400295-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5544733) - continued									
ES2401099-001	QC300_20231105 NULL	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5544733)									
CA2400295-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2401099-001	QC300_20231105 NULL	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5549705)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.4	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.4	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.1	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5547016)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	86.2	77.0	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5543884)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	70.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	96.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	89.6	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5544733)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	92.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5543884)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	75.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	96.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	94.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5544733)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.6	75.0	127
EP080: BTEXN (QCLot: 5544733)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	107	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	103	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	93.3	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	106	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	76.1	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5549705)							
ES2401099-001	QC300_20231105 NULL	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.3	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	101	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	91.7	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	91.3	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.0	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5547016)							
ES2401099-002	QC300_20231205 NULL	EG035T: Mercury	7439-97-6	0.01 mg/L	81.6	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5544733)							
CA2400295-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	101	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5544733)							
CA2400295-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	92.2	70.0	130
EP080: BTEXN (QCLot: 5544733)							
CA2400295-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	85.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	82.9	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	73.5	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	75.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	85.9	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	84.0	70.0	130

QUALITY CONTROL REPORT

Work Order	: **ES2401099-AB**	Page	: 1 of 3
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Order number	: 90709736 - CDRL 400	Date Analysis Commenced	: 18-Jan-2024
C-O-C number	: ----	Issue Date	: 02-Sep-2024
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA002: pH 1:5 (Soils) (QC Lot: 5546285)									
ES2401337-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.1	5.0	0.0	0% - 20%
ES2401099-010	A_BH09_3.0-3.45	EA002: pH Value	----	0.1	pH Unit	5.7	5.8	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5546284)									
ES2401337-006	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	27	28	0.0	0% - 20%
ES2401099-010	A_BH09_3.0-3.45	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	117	114	2.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5547455)									
ES2401099-010	A_BH09_3.0-3.45	EA055: Moisture Content	----	0.1 (1.0)*	%	15.4	15.6	0.8	0% - 50%
ES2401620-003	Anonymous	EA055: Moisture Content	----	0.1	%	26.3	25.6	2.8	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 5546283)									
ES2401406-003	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ES2401099-010	A_BH09_3.0-3.45	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	180	180	0.0	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 5546282)									
ES2401406-003	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	20	30	0.0	No Limit
ES2401099-010	A_BH09_3.0-3.45	ED045G: Chloride	16887-00-6	10	mg/kg	40	30	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002: pH 1:5 (Soils) (QCLot: 5546285)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	101	98.8	101
EA010: Conductivity (1:5) (QCLot: 5546284)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.6	92.0	108
ED040S: Soluble Major Anions (QCLot: 5546283)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	101	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 5546282)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	103	75.0	125
				<10	5000 mg/kg	99.5	79.0	117

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5546282)							
ES2344243-020	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	89.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2401099**	Page	: 1 of 8
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 14-Dec-2023
Site	: ----	Issue Date	: 02-Sep-2024
Sampler	: ----	No. of samples received	: 16
Order number	: 90709736 - CDRL 400	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)						
Snap Lock Bag ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	18-Jan-2024	21-Dec-2023	**28**	----	----	----
EA010: Conductivity (1:5)						
Snap Lock Bag ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	18-Jan-2024	21-Dec-2023	**28**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)						
Snap Lock Bag ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	----	----	----	18-Jan-2024	28-Dec-2023	**21**
ED040S : Soluble Sulfate by ICPAES						
Snap Lock Bag ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	18-Jan-2024	11-Jan-2024	**7**	----	----	----
ED045G: Chloride by Discrete Analyser						
Snap Lock Bag ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	18-Jan-2024	11-Jan-2024	**7**	----	----	----

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EG035T: Total Recoverable Mercury by FIMS						
Clear Plastic Bottle - Nitric Acid; Unfiltered QC300_20231105 - NULL, QC300_20231205 - NULL	----	----	----	19-Jan-2024	11-Jan-2024	**8**
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved QC300_20231105 - NULL, QC300_20231205 - NULL	16-Jan-2024	21-Dec-2023	**26**	----	----	----
Amber VOC Vial - Sulfuric Acid QC300_20231105 - NULL, QC300_20231205 - NULL	17-Jan-2024	28-Dec-2023	**20**	17-Jan-2024	28-Dec-2023	**20**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time							
Amber Glass Bottle - Unpreserved							
QC300_20231105 - NULL,	QC300_20231205 - NULL	16-Jan-2024	21-Dec-2023	**26**	----	----	----
Amber VOC Vial - Sulfuric Acid							
QC300_20231105 - NULL,	QC300_20231205 - NULL	17-Jan-2024	28-Dec-2023	**20**	17-Jan-2024	28-Dec-2023	**20**
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid							
QC300_20231105 - NULL,	QC300_20231205 - NULL	17-Jan-2024	28-Dec-2023	**20**	17-Jan-2024	28-Dec-2023	**20**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA002: pH 1:5 (Soils)								
Snap Lock Bag (EA002)								
ACM_BH09_2.1-2.45, A_BH09_3.0-3.45, R_BH34_3.0-3.3	A_BH09_1.5-1.95, R_BH34_4.5-4.95,	**14-Dec-2023**	**18-Jan-2024**	21-Dec-2023	×	**18-Jan-2024**	18-Jan-2024	✓
EA010: Conductivity (1:5)								
Snap Lock Bag (EA010)								
ACM_BH09_2.1-2.45, A_BH09_3.0-3.45, R_BH34_3.0-3.3	A_BH09_1.5-1.95, R_BH34_4.5-4.95,	**14-Dec-2023**	**18-Jan-2024**	21-Dec-2023	×	**18-Jan-2024**	15-Feb-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Snap Lock Bag (EA055)							
ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	**14-Dec-2023**	**----**	----	----	**18-Jan-2024**	28-Dec-2023	×
ED040S : Soluble Sulfate by ICPAES							
Snap Lock Bag (ED040S)							
ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	**14-Dec-2023**	**18-Jan-2024**	11-Jan-2024	×	**18-Jan-2024**	15-Feb-2024	✓
ED045G: Chloride by Discrete Analyser							
Snap Lock Bag (ED045G)							
ACM_BH09_2.1-2.45, A_BH09_1.5-1.95, A_BH09_3.0-3.45, R_BH34_4.5-4.95, R_BH34_3.0-3.3	**14-Dec-2023**	**18-Jan-2024**	11-Jan-2024	×	**18-Jan-2024**	15-Feb-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**19-Jan-2024**	11-Jun-2024	✓	**19-Jan-2024**	11-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**----**	----	----	**19-Jan-2024**	11-Jan-2024	×
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**16-Jan-2024**	21-Dec-2023	×	**18-Jan-2024**	25-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**17-Jan-2024**	28-Dec-2023	×	**17-Jan-2024**	28-Dec-2023	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**16-Jan-2024**	21-Dec-2023	×	**18-Jan-2024**	25-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**17-Jan-2024**	28-Dec-2023	×	**17-Jan-2024**	28-Dec-2023	×
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20231105 - NULL, QC300_20231205 - NULL	**14-Dec-2023**	**17-Jan-2024**	28-Dec-2023	×	**17-Jan-2024**	28-Dec-2023	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2401099**		
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 90709736 - CDRL 400	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 14-Dec-2023 11:30	Issue Date	: 02-Sep-2024
Client Requested Due Date	: 23-Jan-2024	Scheduled Reporting Date	: **23-Jan-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 31.4'C 28.9'C 31.3'C
Receipt Detail	:	No. of samples received / analysed	: 16 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN to include analysis on samples QC300_20231105, and QC300_20231205 previously on hold as per Eric Serttas.
- This is an updated SRN which indicates updated analysis as per new COC.
- **Samples ACM_BH09_DS_1.9-2.0, A_BH09_SPT_4.5-4.95 and A_BH09_SPT_3.5-4.0 (7, 11 and 12) have been forwarded to Maquarie Geotechnical Lidcombe.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2401099-001 : [14-Dec-2023] : QC300_20231105 - NULL
ES2401099-002 : [14-Dec-2023] : QC300_20231205 - NULL
ES2401099-004 : [14-Dec-2023] : Trip Spike Control 3 - NULL

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA080 Resistivity (1:5)	SOIL - IN-4S pH plus EC (1:5)	SOIL - NT-2S Major Anions (Cl, SO4)
ES2401099-003	21-Nov-2023 00:00	Trip Spike 3 NULL	✓				
ES2401099-004	21-Nov-2023 00:00	Trip Spike Control 3...	✓				
ES2401099-005	24-Nov-2023 00:00	Trip Blank NULL	✓				
ES2401099-006	07-Dec-2023 00:00	ACM_BH09_2.1-2.45		✓	✓	✓	✓
ES2401099-008	05-Dec-2023 00:00	A_BH09_5.5-6.0	✓				
ES2401099-009	05-Dec-2023 00:00	A_BH09_1.5-1.95		✓	✓	✓	✓
ES2401099-010	05-Dec-2023 00:00	A_BH09_3.0-3.45		✓	✓	✓	✓
ES2401099-013	05-Dec-2023 00:00	A_BH09_6.0-6.45	✓				
ES2401099-014	05-Dec-2023 00:00	A_BH09_6.0-6.45	✓				
ES2401099-015	05-Dec-2023 00:00	R_BH34_4.5-4.95		✓	✓	✓	✓
ES2401099-016	05-Dec-2023 00:00	R_BH34_3.0-3.3		✓	✓	✓	✓
ES2401099-017	04-Dec-2023 00:00	R_BH34_1.5-1.95	✓				
ES2401099-018	04-Dec-2023 00:00	BH25_1.5-1.95	✓				
ES2401099-019	04-Dec-2023 00:00	BH25_3.0-3.45	✓				

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-05T TRH/BTEXN/8 Metals (Total)
ES2401099-001	05-Nov-2023 00:00	QC300_20231105 NULL	✓
ES2401099-002	05-Dec-2023 00:00	QC300_20231205 NULL	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

Mark Tiedeman

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	mark.tiedeman@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com
- EDI Format - XTab (XTAB)	Email	mark.tiedeman@aecom.com

CHAIN OF CUSTODY

ALS Laboratory: please tick →

AECOM

OFFICE:	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):		FOR LABORATORY USE ONLY (Circle)
PROJECT: 60704736 - CDAL 400 PROJECT NO.:	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Custody Seal Intact? Yes No N/A
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	OF: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
PROJECT MANAGER: CONTACT PH:			Random Sample Temperature on Receipt: °C
SAMPLER: SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY: RECEIVED BY:
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):			
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME:	DATE/TIME: DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Environmental Division Sydney
Work Order Reference
ES2401099

Telephone : +61-2-8784 8555

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissol
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	
1	QC300_20231105	5/11	W		4	
2	QC300 5/12/23	5/12	W		4	Extra Samples
3, 4	Trip Spike - 3	21/11	S	Trip Spik Centre / 3	1	
5	Trip Blank	24/11	S		1	Placed in
6	ACM-BH09_2.0	7/12	S		1	esky Thursday 116, 117, 118
7	ACM BH09_1.9-2.0	7/12				
8	A BH09_5.5-6.0	5/12				
9	A-BH09_1.5_1.95	5/12				
10	A-BH09_3.0-3.45	5/12				
11	A-BH09_4.5-4.95	5/12				
12	A-BH09_3.5-4.0	5/12				
13	A-BH09_6.0-6.4					
				TOTAL		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: PROJECT NO.:	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 (2) 3 4 5 6 7	Random Sample Temperature on Receipt: C
PROJECT MANAGER: CONTACT PH:		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):				
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):				

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
14	R-BH34 SPT_6.0	5/12	S		1								
15	R-BH34 SPT_4.5_4.9T	5/12	↓		↓								
16	R-BH34 SPT_3.0-3.4T	5/12											
17	R-BH34 SPT_1.5-1.9T	4/12											
18	BH25 SPT_1.5	4/12											
19	BH25 SPT_3.0-3.4T	4/12	↓		↓								
20 ✓	R-BH26A 0.4-0.8	5/12	S		1	Bulk bags							
21 ✓	R-BH27A 0.5-0.8	5/12	↓		↓							ID faded, might be 27A/28A	
22 ✓	R-BH34 3.0-4.0	4/12											
23 ✓	R-BH34 0.1-1.0	4/12											
24 ✓	R-BH34 BS_1.0-2.0	4/12	↓		↓								
				TOTAL									

ES2400855

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

UPDATED COC

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: 60704736 - CDRL 400 PROJECT NO.:	ALS QUOTE NO.:	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: CONTACT PH:		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER:	SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY: Jack	RELINQUISHED BY:	RECEIVED BY:
COC Emailed to ALS? (YES / NO)	EDD FORMAT (or default):				
Email Reports to (will default to PM if no other addresses are listed):		DATE/TIME:	DATE/TIME: 17/01/24 10:25am	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):					

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfilitered bottle required) or Dissolved (field filtered bottle required).	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES		
1	QC500_20231105	5/11	W		4		
2	QC300 5/12/23	5/12			4	Extra Samples	
3,4	Trip Spike - 3	21/11	S				
5	Trip Blank	24/11	S				
6	ACM-BH09_2.0	7/12	S			17	
7	ACM-BH09_1.9-2.0	7/12				Thursday 116, 117, 118	
8	A-BH09_5.5-6.0	5/12					
9	A-BH09_1.5_1.95	5/12					
10	A-BH09_3.0-3.45	5/12					
11	A-BH09_4.5_4.95	5/12					
12	A-BH09_3.5-4.0	5/12					
13	A-BH09_6.0-6.4						

test aggressivity

send to Macquarie Geotechnical Lidcombe

test aggressivity x2

send to Macquarie Geotechnical Lidcombe

Environmental Division
Sydney
Work Order Reference
ES2401099

Telephone : +61-2-8784 8555

Subcon / Forward Lab / Split WO
Lab / Analysis: Macquarie Geotechnical
Organised By / Date: 7.11.12
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT:	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):		FOR LABORATORY USE ONLY (Circle)
OFFICE:			Custody Seal Intact? Yes No N/A
PROJECT: PROJECT NO.:	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 (2) 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: CONTACT PH:		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY: / RECEIVED BY:
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):			
Email Reports to (will default to PM if no other addresses are listed):	DATE/TIME:	DATE/TIME:	DATE/TIME: / DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analyses etc.
14	R-BH34 SPT_0.0	5/12	S		1									
15	R-BH34 SPT_4.5-4.95	5/12												
16	R-BH34 SPT_3.0-3.45	5/12												
17	R-BH34 SPT_1.5-1.95	4/12												
18	BH25 SPT_1.5	4/12												
19	BH25 SPT_3.0-3.45	4/12												
	R-BH26A 0.4-0.8	5/12	S		1	Bulk bags								
	R-BH27A 0.5-0.8	5/12												ID faded, might be 27A/28A
	R-BH34 3.0-4.5	4/12												
	R-BH34 0.1-1.0	4/12												
	R-BH34 BS_1.0-2.0	4/12												
				TOTAL										

test aggressivity x2

send to Macquarie Geotechnical Lidcombe

ES2400855

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2401671**	Page	: 1 of 9
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 17-Jan-2024 19:20
Order number	: 60709736	Date Analysis Commenced	: 19-Jan-2024
C-O-C number	: ----	Issue Date	: 24-Jan-2024 17:39
Sampler	: AECOM Geotech Team		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH20B_0.5-0.6	A-BH09_0.5-0.6	BH25_0.1-0.2	BH25_0.7-0.8	R-BH30_0.0-0.2
				Sampling date / time	30-Nov-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	13-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2401671-001	ES2401671-002	ES2401671-003	ES2401671-004	ES2401671-005
					Result	Result	Result	Result	Result
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**8.9**	**9.0**	**8.3**	**8.3**	**9.1**
After HCl pH	----	0.1	pH Unit		**1.4**	**1.4**	**1.5**	**1.5**	**1.6**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit		**5.1**	**5.0**	**5.1**	**5.0**	**5.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP09_0.035-0.1	R_BH36_0.5-0.6	BH40_0.07-0.47	A-TP13_0.0-0.2	ACM-BH05_0.9-1.0
				Sampling date / time	13-Dec-2023 00:00	18-Dec-2023 00:00	15-Dec-2023 00:00	19-Dec-2023 00:00	07-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2401671-006	ES2401671-007	ES2401671-008	ES2401671-009	ES2401671-010
					Result	Result	Result	Result	Result
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**9.1**	**9.1**	**10.1**	**8.9**	**8.6**
After HCl pH	----	0.1	pH Unit		**1.6**	**1.4**	**2.3**	**1.5**	**1.5**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit		**5.1**	**5.0**	**5.2**	**5.4**	**5.0**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	R-BH20B_0.5-0.6	A-BH09_0.5-0.6	BH25_0.1-0.2	BH25_0.7-0.8	R-BH30_0.0-0.2
				Sampling date / time	30-Nov-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	13-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2401671-001	ES2401671-002	ES2401671-003	ES2401671-004	ES2401671-005
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		**0.2**	----	**0.2**	**1.1**	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		----	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		----	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		----	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		----	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		----	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		----	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		----	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		----	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		----	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		----	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		----	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		----	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		----	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		----	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		----	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		----	<0.5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	**23.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	**45.1**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	**45.6**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	**59.9**	----	----	----
Anthracene-d10	1719-06-8	1.0	%		----	**60.4**	----	----	----

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)			Sample ID	R-BH20B_0.5-0.6	A-BH09_0.5-0.6	BH25_0.1-0.2	BH25_0.7-0.8	R-BH30_0.0-0.2
			Sampling date / time	30-Nov-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	05-Dec-2023 00:00	13-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	ES2401671-001	ES2401671-002	ES2401671-003	ES2401671-004	ES2401671-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	1.0	%	**----**	**61.3**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	ACM-TP09_0.035-0.1	R_BH36_0.5-0.6	BH40_0.07-0.47	A-TP13_0.0-0.2	ACM-BH05_0.9-1.0
				Sampling date / time	13-Dec-2023 00:00	18-Dec-2023 00:00	15-Dec-2023 00:00	19-Dec-2023 00:00	07-Dec-2023 00:00
					ES2401671-006	ES2401671-007	ES2401671-008	ES2401671-009	ES2401671-010
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		----	----	----	<0.1	<0.1
Nickel	7440-02-0	0.1	mg/L		<0.1	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		----	<1.0	----	----	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		----	<1.0	----	----	<1.0
Acenaphthene	83-32-9	1.0	µg/L		----	<1.0	----	----	**2.0**
Fluorene	86-73-7	1.0	µg/L		----	<1.0	----	----	**1.2**
Phenanthrene	85-01-8	1.0	µg/L		----	<1.0	----	----	**2.3**
Anthracene	120-12-7	1.0	µg/L		----	<1.0	----	----	<1.0
Fluoranthene	206-44-0	1.0	µg/L		----	<1.0	----	----	<1.0
Pyrene	129-00-0	1.0	µg/L		----	<1.0	----	----	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		----	<1.0	----	----	<1.0
Chrysene	218-01-9	1.0	µg/L		----	<1.0	----	----	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		----	<1.0	----	----	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		----	<1.0	----	----	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		----	<1.0	----	----	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		----	<1.0	----	----	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		----	<1.0	----	----	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		----	<0.5	----	----	**5.5**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		----	<0.5	----	----	<0.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	**24.9**	----	----	**24.8**
2-Chlorophenol-D4	93951-73-6	1.0	%		----	**49.5**	----	----	**49.6**
2.4.6-Tribromophenol	118-79-6	1.0	%		----	**50.7**	----	----	**51.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	**66.6**	----	----	**65.8**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	ACM-TP09_0.035-0.1	R_BH36_0.5-0.6	BH40_0.07-0.47	A-TP13_0.0-0.2	ACM-BH05_0.9-1.0
				Sampling date / time	13-Dec-2023 00:00	18-Dec-2023 00:00	15-Dec-2023 00:00	19-Dec-2023 00:00	07-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		ES2401671-006	ES2401671-007	ES2401671-008	ES2401671-009	ES2401671-010
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	1.0	%		**----**	**66.3**	**----**	**----**	**63.5**
4-Terphenyl-d14	1718-51-0	1.0	%		**----**	**67.8**	**----**	**----**	**66.7**

Surrogate Control Limits

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

QUALITY CONTROL REPORT

Work Order	: **ES2401671**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 17-Jan-2024
Order number	: 60709736	Date Analysis Commenced	: 19-Jan-2024
C-O-C number	: ----	Issue Date	: 24-Jan-2024
Sampler	: AECOM Geotech Team		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 5554691)									
ES2401333-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	0.3	0.3	0.0	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	1.6	1.6	0.0	0% - 50%
ES2401671-004	BH25_0.7-0.8	EG005C: Lead	7439-92-1	0.1	mg/L	1.1	1.1	0.0	0% - 50%
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel) (QCLot: 5550185)								
EN33a-G: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel) (QCLot: 5550186)								
EN33a-G: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5554691)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	104	80.0	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	108	83.0	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5553144)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.7	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	89.8	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	80.8	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	83.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	81.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	80.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	80.1	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	68.1	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	76.7	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	72.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	70.5	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	70.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	70.7	59.1	118

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5554691)							
ES2401449-001	Anonymous	EG005C: Lead	7439-92-1	1 mg/L	106	70.0	130
		EG005C: Nickel	7440-02-0	1 mg/L	104	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2401671**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 17-Jan-2024
Site	: ----	Issue Date	: 24-Jan-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 10
Order number	: 60709736	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
A-BH09_0.5-0.6	19-Jan-2024	19-Dec-2023	**31**	----	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
ACM-BH05_0.9-1.0	19-Jan-2024	21-Dec-2023	**29**	----	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
R_BH36_0.5-0.6	19-Jan-2024	01-Jan-2024	**18**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count		Rate (%)		Quality Control Specification
		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a-G)							
A-BH09_0.5-0.6	**05-Dec-2023**	**19-Jan-2024**	19-Dec-2023	×	**----**	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a-G)							
ACM-BH05_0.9-1.0	**07-Dec-2023**	**19-Jan-2024**	21-Dec-2023	×	**----**	----	----
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a-G)							
R_BH36_0.5-0.6	**18-Dec-2023**	**19-Jan-2024**	01-Jan-2024	×	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH25_0.1-0.2, BH25_0.7-0.8	**05-Dec-2023**	**19-Jan-2024**	02-Jun-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
R-BH30_0.0-0.2, ACM-TP09_0.035-0.1	**13-Dec-2023**	**19-Jan-2024**	10-Jun-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH40_0.07-0.47	**15-Dec-2023**	**19-Jan-2024**	12-Jun-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
A-TP13_0.0-0.2	**19-Dec-2023**	**19-Jan-2024**	16-Jun-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
R-BH20B_0.5-0.6	**30-Nov-2023**	**19-Jan-2024**	28-May-2024	✓	**----**	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
R-BH20B_0.5-0.6, BH25_0.1-0.2, BH25_0.7-0.8, R-BH30_0.0-0.2, ACM-TP09_0.035-0.1, R_BH36_0.5-0.6, BH40_0.07-0.47, A-TP13_0.0-0.2, ACM-BH05_0.9-1.0	**19-Jan-2024**	**22-Jan-2024**	17-Jul-2024	✓	**22-Jan-2024**	17-Jul-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
A-BH09_0.5-0.6, R_BH36_0.5-0.6, ACM-BH05_0.9-1.0	**19-Jan-2024**	**22-Jan-2024**	26-Jan-2024	✓	**22-Jan-2024**	02-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB)							
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	2	22	**9.09**	**9.09**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2401671**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 17-Jan-2024 19:20	Issue Date	: 18-Jan-2024
Client Requested Due Date	: 24-Jan-2024	Scheduled Reporting Date	: **24-Jan-2024**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EN33a-G TCLP Leachate - Glass Leaching Vessel	SOIL - EP075 SIM PAH only SIM - PAH only
ES2401671-001	30-Nov-2023 00:00	R-BH20B_0.5-0.6	✓	✓	
ES2401671-002	05-Dec-2023 00:00	A-BH09_0.5-0.6		✓	✓
ES2401671-003	05-Dec-2023 00:00	BH25_0.1-0.2	✓	✓	
ES2401671-004	05-Dec-2023 00:00	BH25_0.7-0.8	✓	✓	
ES2401671-005	13-Dec-2023 00:00	R-BH30_0.0-0.2	✓	✓	
ES2401671-006	13-Dec-2023 00:00	ACM-TP09_0.035-0.1	✓	✓	
ES2401671-007	18-Dec-2023 00:00	R_BH36_0.5-0.6	✓	✓	✓
ES2401671-008	15-Dec-2023 00:00	BH40_0.07-0.47	✓	✓	
ES2401671-009	19-Dec-2023 00:00	A-TP13_0.0-0.2	✓	✓	
ES2401671-010	07-Dec-2023 00:00	ACM-BH05_0.9-1.0	✓	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EN33a-G: TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel							
A-BH09_0.5-0.6	Non-Volatile Leach: 14 day HT(e	19-Dec-2023	----	17-Jan-2024	✘	----	----
ACM-BH05_0.9-1.0	Non-Volatile Leach: 14 day HT(e	21-Dec-2023	----	17-Jan-2024	✘	----	----
R_BH36_0.5-0.6	Non-Volatile Leach: 14 day HT(e	01-Jan-2024	----	17-Jan-2024	✘	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

MARK TIEDEMAN

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- Chromatogram (CHROM)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

k Clifton

Rec: Jack 17/01/24 1920

om: Loren Schiavon
Sent: Wednesday, 17 January 2024 7:18 PM
To: rebatches.sydney
Subject: FW: [EXTERNAL] - Additional Analysis Request (Multiple Batches)

Hi Team,

Can I please get you to process this rebatch request for me? Sorry I realise I received it yesterday.

Batch	Chemical	Sample	
ES2341790	Lead TCLP	R-BH20B_0.5-0.6	1
ES2343534	Benzoapyrene TCLP	A-BH09_0.5-0.6	2
ES2343534	Lead TCLP	BH25_0.1-0.2	3
ES2343534	Lead TCLP	BH25_0.7-0.8	4
ES2343854	Lead TCLP	R-BH30_0.0-0.2	5
ES2343854	Nickel TCLP	ACM-TP09_0.035-0.1	6
ES2344222	Benzoapyrene TCLP	R_BH36_0.5-0.6	7
ES2344222	Nickel TCLP	R_BH36_0.5-0.6	
ES2344549	Nickel TCLP	BH40_0.07-0.47	8
ES2344603	Lead TCLP	A-TP13_0.0-0.2	9
ES2344617	Benzoapyrene TCLP	ACM-BH05_0.9-1.0	10
ES2344617	Lead TCLP	ACM-BH05_0.9-1.0	

Details for each batch/sample listed below...thanks.

Environmental Division
Sydney
Work Order Reference
ES2401671

Telephone : +61-2-8784 8555

Workorder ES2341790 (1)

Released

Check Out for Amendment

AECOMAU (C0, 29/12/2023) 60709736 - CDRL 400 Client Quote Manager: Peter Ravlic

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

			Sample	Sub-Matrix	Status	Date	Highly Impacted	Name
			016	SOIL	Logged	30/11/2023	☐	R-BH20B_0.5-0.6

Sydney samples are in trays: S-494,495,496

Workorder ES2343534

Released

Check Out for Amendment

AECOMAU (C0, 19/12/2023) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Due Date	19/12/2023	**Client**	AECOMAU C0
Client Expected Date	20/12/2023	**Office**	SYDNEY
Priority	1	**Work Contact**	Eric Serttas
Sales Rep		**Quote**	EP2023AECOMAU0(
		Billing Agreement	

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

			Sample	Sub-Matrix	Status	Date	Highly Impacted	Name
			006	SOIL	Logged	5/12/2023	☐	BH25_0.1-0.2
			007	SOIL	Logged	5/12/2023	☐	BH25_0.7-0.8
>			011	SOIL	Logged	5/12/2023	☐	A-BH09_0.5-0.6

Sydney samples are in trays: S-589 S-590 S-591 SV-139 V-123c M-098c

Workorder ES2343854

Released

Check Out for Amendment

AECOMAU (C0, 4/01/2024) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

	Sample	Sub-Matrix	Status	Date	Highly Impacted	Name	De
	007	SOIL	Logged	13/12/2023	☐	ACM-TP09_0.035-0.1	
>	012	SOIL	Logged	13/12/2023	☐	A-BH03_0.0-0.2	

Sydney samples are in trays: S-636 S-637 S-700 SV-175 V-174b M-143c LC-047

New Workorder Workorder ES2344222 Go

Workorder ES2344222

Released

Check Out for Amendment

AECOMAU (C0, 29/12/2023) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

	Sample	Sub-Matrix	Status	Date	Highly Impacted	Name
>	014	SOIL	Logged	18/12/2023	☐	R_BH36_0.5-0.6

Sydney samples are in trays: SV169, M133b, V162c, LC44, S676, S677, S678.

Workorder ES2344549

Released

Check Out for Amendment

AECOMAU (C0, 28/12/2023) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

			Sample	Sub-Matrix	Status	Date	Highly Impacted	Name
>			006	SOIL	Logged	15/12/2023	☐	BH40_0.07-0.47

Sydney samples are in trays: Eurofins EN S-709 S-710 SV-178 M-147b V-176a

New Workorder Workorder ES2344603 Go

Workorder ES2344603

Released

Check Out for Amendment

AECOMAU (C0, 5/01/2024) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

			Sample	Sub-Matrix	Status	Date	Highly Impacted	Name	Desc
>			001	SOIL	Logged	19/12/2023	☐	A-TP13_0.0-0.2	

Sydney samples are in trays: S-714 S-715 S-716 SV-178 V-177c M-147c LC-053

Workorder ES2344617

Released

Check Out for Amendment

AECOMAU (C0. 29/12/2023) 60709736 - CDRL 400 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

			Sample	Sub-Matrix	Status	Date	Highly Impacted	Name	Descr
>			002	SOIL	Logged	7/12/2023		ACM-BH05_0.9-1.0	

- Sydney samples are in trays: S-717

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Tuesday, January 16, 2024 2:31 PM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>; Loren Schiavon <loren.schiavon@alsglobal.com>

Cc: McGrath, Kate <Kate.McGrath@aecom.com>; Randall, Stephen <stephen.randall@aecom.com>; Tiedeman, Mark <Mark.Tiedeman@aecom.com>
Subject: [EXTERNAL] - Additional Analysis Request (Multiple Batches)

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please amend the task code for all the jobs requested as (60709736) Task "CDRL 1100" rather than CDRL 400?

Also please conduct the following analysis in standard TAT;

Batch	Chemical	Sample
ES2341790	Lead TCLP	R-BH20B_0.5-0.6
ES2343534	Benzoapyrene TCLP	A-BH09_0.5-0.6
ES2343534	Lead TCLP	BH25_0.1-0.2
ES2343534	Lead TCLP	BH25_0.7-0.8
ES2343854	Lead TCLP	R-BH30_0.0-0.2
ES2343854	Nickel TCLP	ACM-TP09_0.035-0.1
ES2344222	Benzoapyrene TCLP	R_BH36_0.5-0.6
ES2344222	Nickel TCLP	R_BH36_0.5-0.6
ES2344549	Nickel TCLP	BH40_0.07-0.47
ES2344603	Lead TCLP	A-TP13_0.0-0.2
ES2344617	Benzoapyrene TCLP	ACM-BH05_0.9-1.0
ES2344617	Lead TCLP	ACM-BH05_0.9-1.0

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM

Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

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CERTIFICATE OF ANALYSIS

Work Order	: **ES2401766**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL WONG	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8934 0000	Telephone	: +6138549 9645
Project	: 60710008 - 11.02	Date Samples Received	: 18-Jan-2024 15:00
Order number	: 60710008-11.02	Date Analysis Commenced	: 18-Jan-2024
C-O-C number	: ----	Issue Date	: 19-Jan-2024 15:21
Sampler	: Eric Serttas		
Site	: Wyong - Ampol Sutherland		
Quote number	: ME/624/21 - AMPOL		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP071: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Outlet-1	Drain-1	----	----	----
				Sampling date / time	17-Jan-2024 00:00	17-Jan-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2401766-001	ES2401766-002	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**80**	**70**	----	----	----
C10 - C14 Fraction	----	50	µg/L		**640**	**67600000**	----	----	----
C15 - C28 Fraction	----	100	µg/L		**1360**	**119000000**	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<440	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		**2000**	**187000000**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**180**	**490**	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		**160**	**450**	----	----	----
>C10 - C16 Fraction	----	100	µg/L		**940**	**111000000**	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**1100**	**72100000**	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<440	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**2040**	**183000000**	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		**940**	**111000000**	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		**6**	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	**2**	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		**5**	**17**	----	----	----
ortho-Xylene	95-47-6	2	µg/L		**6**	**18**	----	----	----
^ Total Xylenes	----	2	µg/L		**11**	**35**	----	----	----
^ Sum of BTEX	----	1	µg/L		**17**	**37**	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	**10**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**95.1**	**94.5**	----	----	----
Toluene-D8	2037-26-5	2	%		**94.3**	**98.6**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**108**	**106**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2401766**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL WONG	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 02 8934 0000	Telephone	: +6138549 9645
Project	: 60710008 - 11.02	Date Samples Received	: 18-Jan-2024
Order number	: 60710008-11.02	Date Analysis Commenced	: 18-Jan-2024
C-O-C number	: ----	Issue Date	: 19-Jan-2024
Sampler	: Eric Serttas		
Site	: Wyong - Ampol Sutherland		
Quote number	: ME/624/21 - AMPOL		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5550102)									
ES2401766-001	Outlet-1	EP080: C6 - C9 Fraction	----	20	µg/L	80	80	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5550102)									
ES2401766-001	Outlet-1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	180	150	19.9	No Limit
EP080: BTEXN (QC Lot: 5550102)									
ES2401766-001	Outlet-1	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	6	7	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	5	5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	6	6	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5548934)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	77.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	94.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	96.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5550102)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	82.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5548934)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	78.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	92.9	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	71.9	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5550102)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	76.2	75.0	127
EP080: BTEXN (QCLot: 5550102)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	79.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	85.0	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	86.6	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.3	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.2	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.4	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5550102)							
ES2401766-001	Outlet-1	EP080: C6 - C9 Fraction	----	325 µg/L	87.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5550102)							
ES2401766-001	Outlet-1	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	87.1	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5550102)							
ES2401766-001	Outlet-1	EP080: Benzene	71-43-2	25 µg/L	114	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	122	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	114	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	123	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	112	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2401766**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL WONG	Telephone	: +6138549 9645
Project	: 60710008 - 11.02	Date Samples Received	: 18-Jan-2024
Site	: Wyong - Ampol Sutherland	Issue Date	: 19-Jan-2024
Sampler	: Eric Serttas	No. of samples received	: 2
Order number	: 60710008-11.02	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
Outlet-1, Drain-1	**17-Jan-2024**	**18-Jan-2024**	24-Jan-2024	✓	**19-Jan-2024**	27-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Outlet-1, Drain-1	**17-Jan-2024**	**19-Jan-2024**	31-Jan-2024	✓	**19-Jan-2024**	31-Jan-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
Outlet-1, Drain-1	**17-Jan-2024**	**18-Jan-2024**	24-Jan-2024	✓	**19-Jan-2024**	27-Feb-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
Outlet-1, Drain-1	**17-Jan-2024**	**19-Jan-2024**	31-Jan-2024	✓	**19-Jan-2024**	31-Jan-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
Outlet-1, Drain-1	**17-Jan-2024**	**19-Jan-2024**	31-Jan-2024	✓	**19-Jan-2024**	31-Jan-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2401766**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL WONG	Contact	: Peter Ravlic
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.wong@aecom.com	E-mail	: peter.ravlic@alsglobal.com
Telephone	: 02 8934 0000	Telephone	: +6138549 9645
Facsimile	: 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60710008 - 11.02	Page	: 1 of 2
Order number	: ----	Quote number	: EM2021AECOMAU0015 (ME/624/21 - AMPOL)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong - Ampol Sutherland		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 18-Jan-2024 15:00	Issue Date	: 18-Jan-2024
Client Requested Due Date	: 19-Jan-2024	Scheduled Reporting Date	: **19-Jan-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 4.7, 7.2, 7.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-04 TRH/BTEXN
ES2401766-001	17-Jan-2024 00:00	Outlet-1	✓
ES2401766-002	17-Jan-2024 00:00	Drain-1	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com

DANIEL WONG

- *AU Certificate of Analysis - NATA (COA)	Email	daniel.wong@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	daniel.wong@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	daniel.wong@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	daniel.wong@aecom.com
- Chain of Custody (CoC) (COC)	Email	daniel.wong@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	daniel.wong@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	daniel.wong@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: **Eric Serttas**	ADDRESS / OFFICE:	SAMPLER: **Eric Serttas**	**Destination Laboratory**
PROJECT MANAGER (PM): **Daniel Wong**	SITE: **Wyong - Ampol Southbound**	MOBILE: **+61 419 167 685** PHONE:	**ALS**
PROJECT NUMBER & TASK CODE: **60710008 - 11.02**	P.O. NO.:	EMAIL REPORT TO: **eric.serttas@aecom.com , daniel.wong@aecom.com**	
RESULTS REQUIRED (Date): ~~3 Days TAT~~ 24 Hrs	QUOTE NO.: **ME/624/21**	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		TRH, BTEXN	HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles		
1	Outlet-1	W	17/01/24	PM	V, AG	2, 1	X	
2	Drain-1	W	17/01/24	PM	V, AG	2, 1	X	

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name Eric Serttas	18/01/2024	Name: Ashid	Date: 18/1	Name:	Date:	Con' Note No:
Of:	Time: AM	Of: ALS	Time: 1500	Of:	Time:	Transport Co:

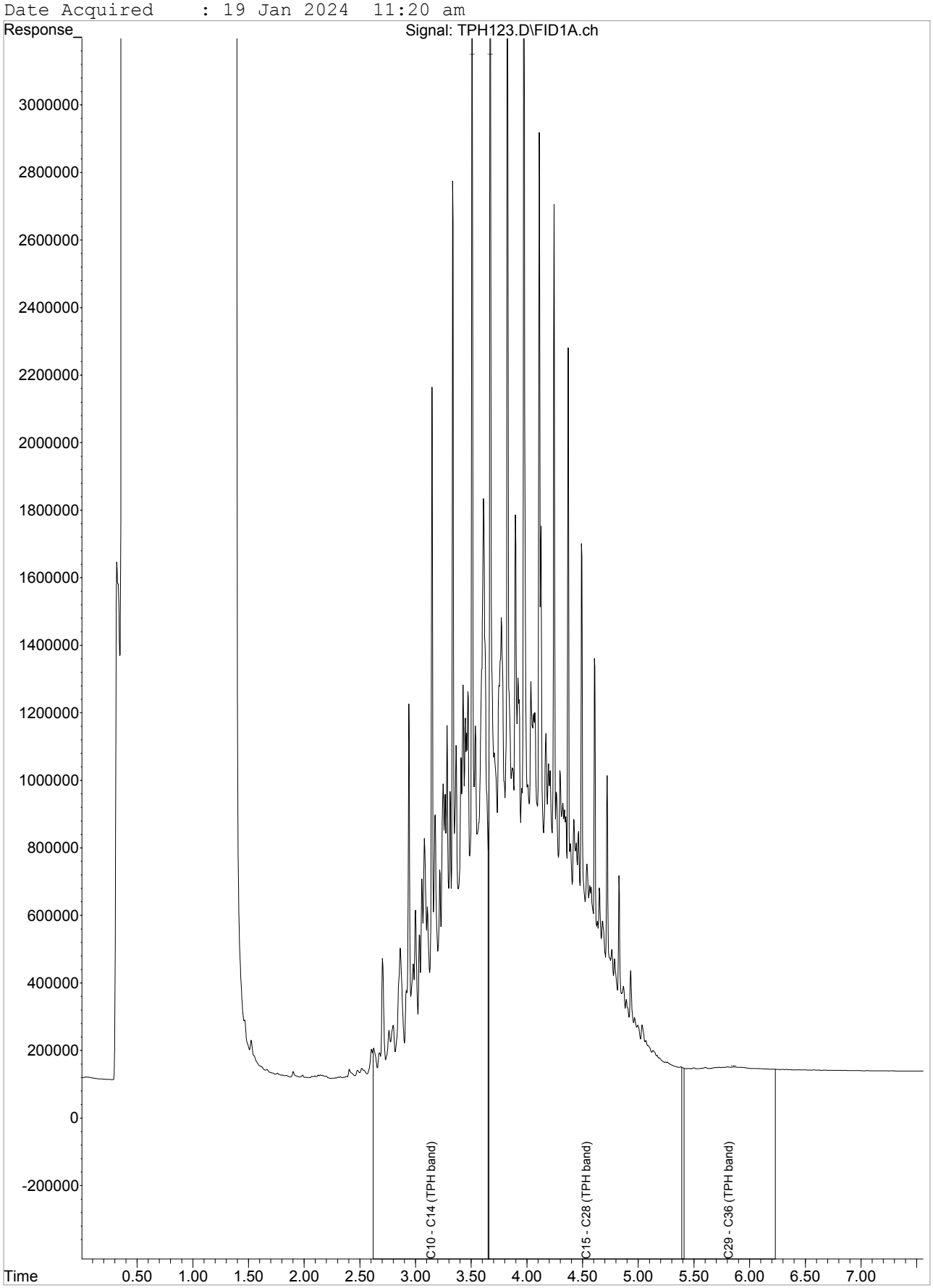
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

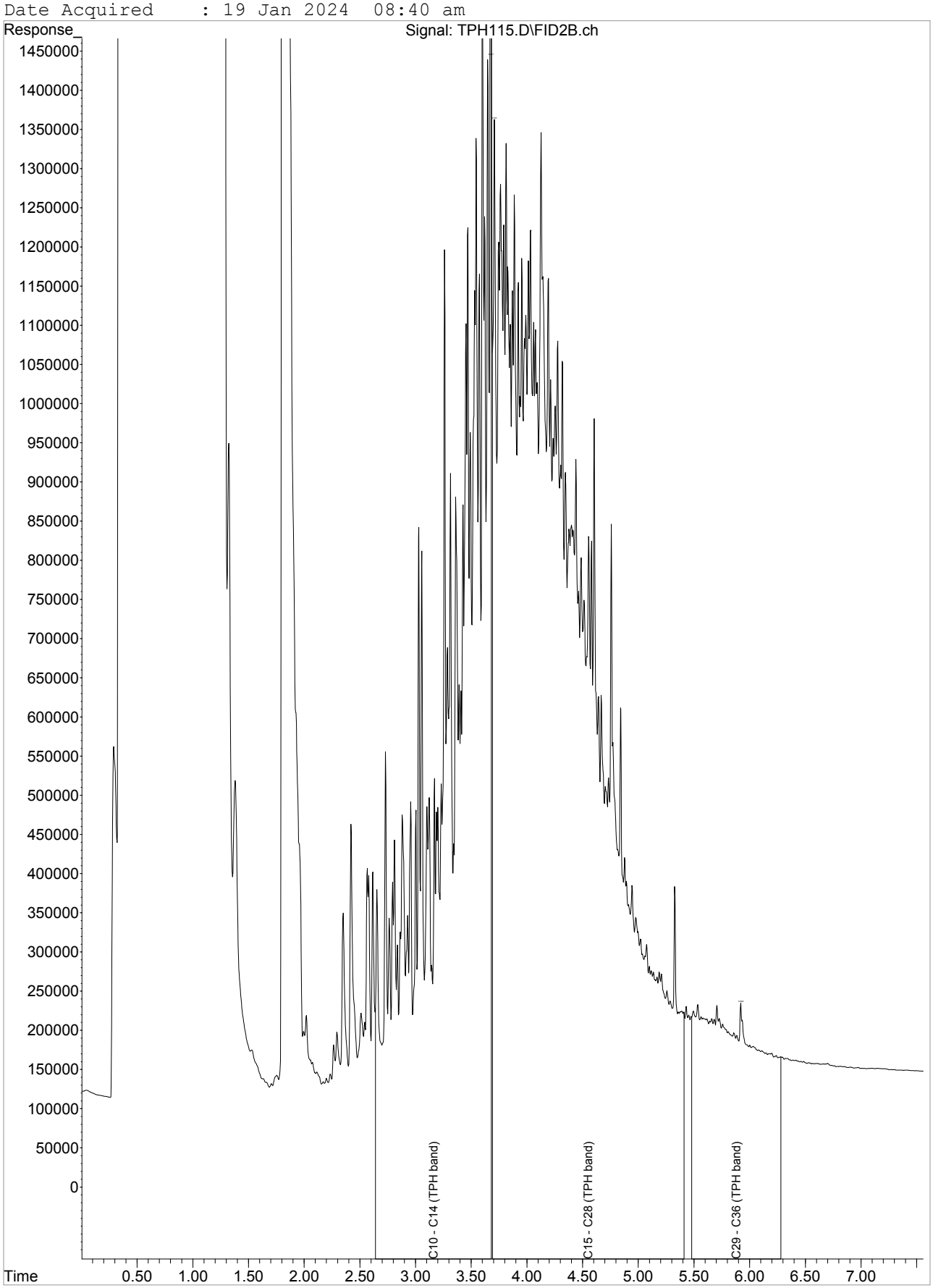
Environmental Division
Sydney
Work Order Reference
ES2401766

Telephone : - 61-2-8784 8555

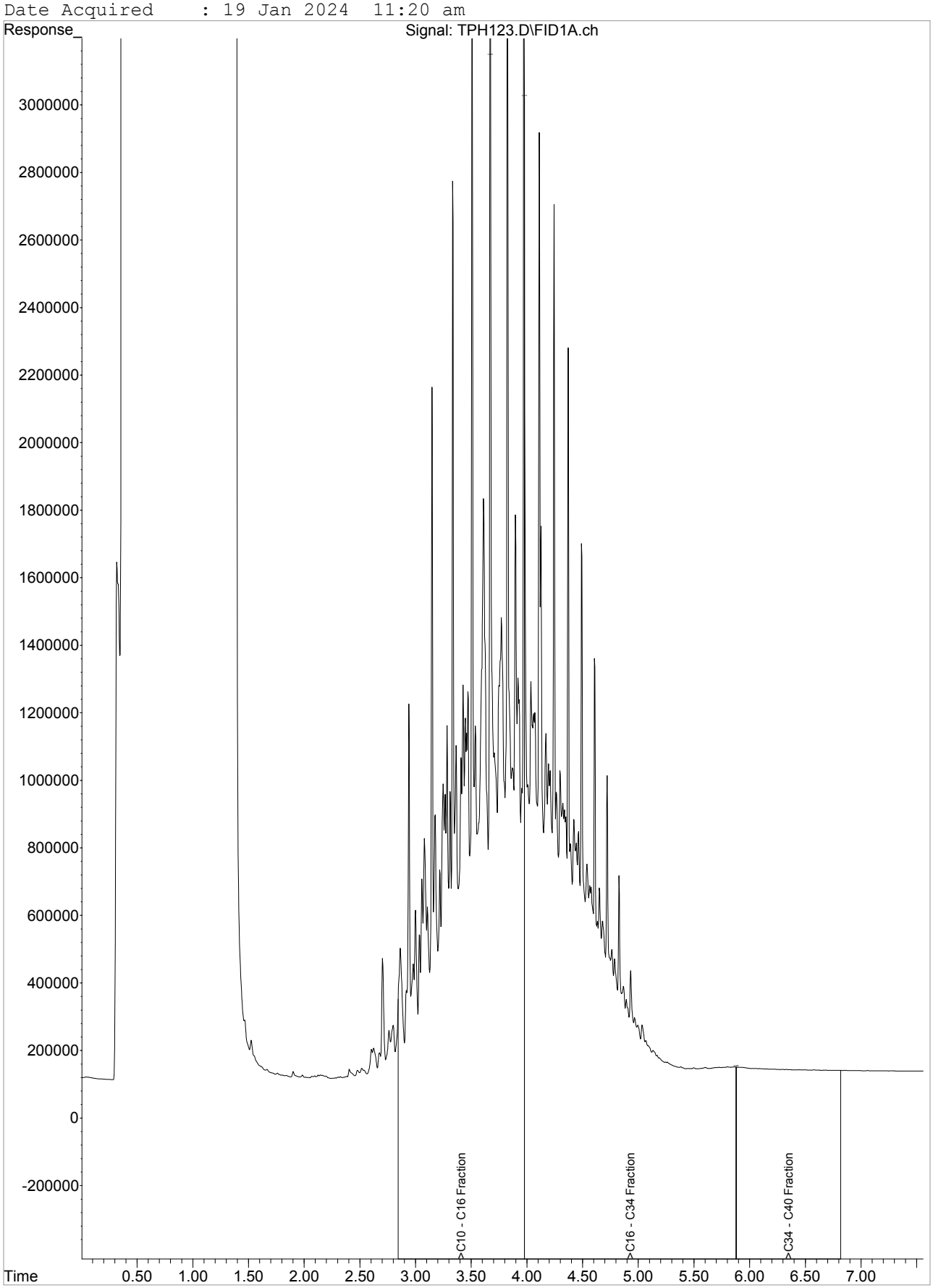
Fraction Scheme : Legacy
Data File : TPH123.D
Laboratory Number: ES2401766-002
Sample ID : Drain-1
Date Acquired : 19 Jan 2024 11:20 am



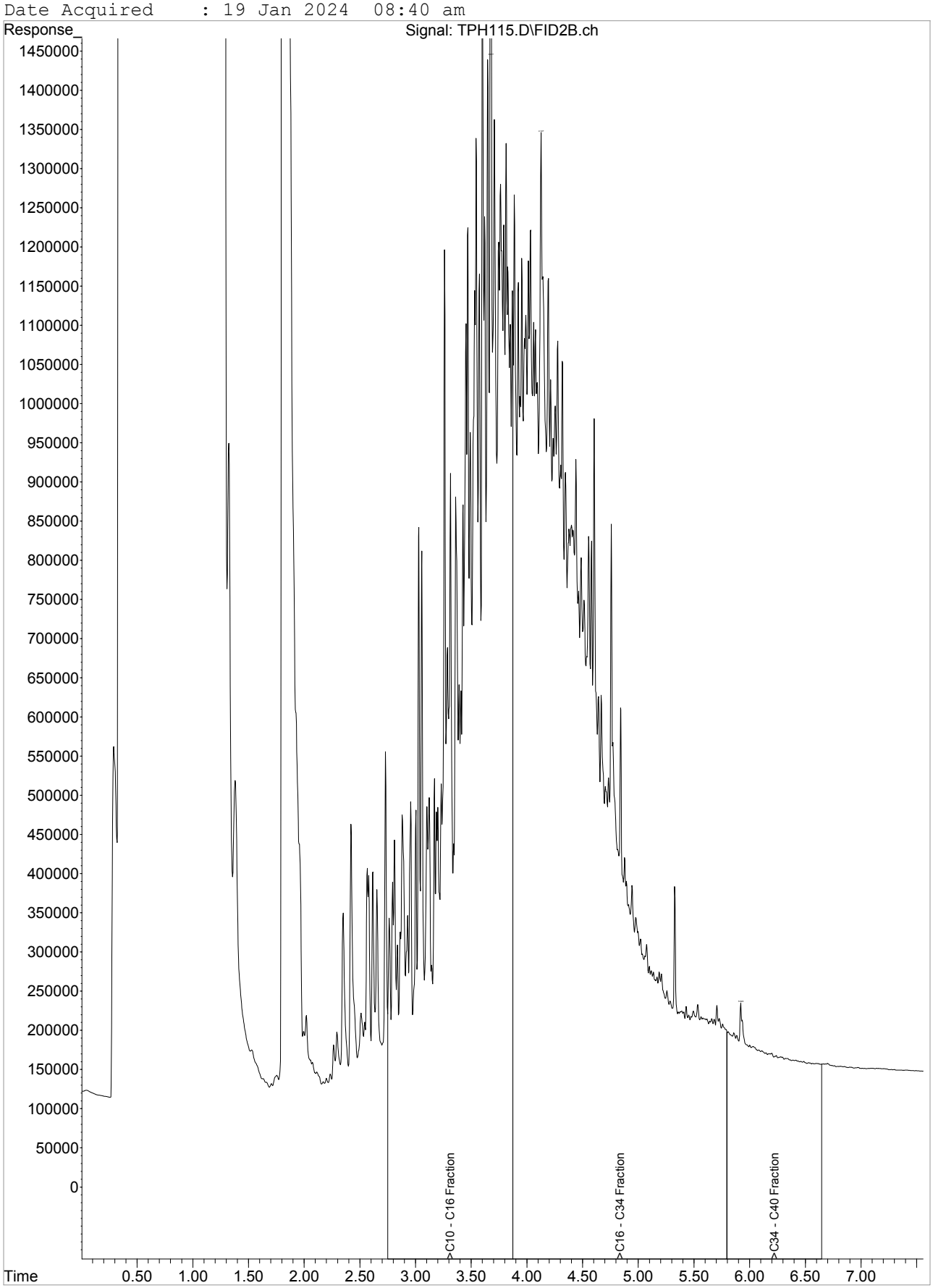
Fraction Scheme : Legacy
Data File : TPH115.D
Laboratory Number: ES2401766-001
Sample ID : Outlet-1
Date Acquired : 19 Jan 2024 08:40 am



Fraction Scheme : NEPM
Data File : TPH123.D
Laboratory Number: ES2401766-002
Sample ID : Drain-1
Date Acquired : 19 Jan 2024 11:20 am



Fraction Scheme : NEPM
Data File : TPH115.D
Laboratory Number: ES2401766-001
Sample ID : Outlet-1
Date Acquired : 19 Jan 2024 08:40 am



CERTIFICATE OF ANALYSIS

Work Order	: **ES2402822**	Page	: 1 of 3
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Jan-2024 14:00
Order number	: 60709736	Date Analysis Commenced	: 31-Jan-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024 12:34
Sampler	: AECOM Geotech		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001. All analysis results are as per the previous report.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-BH09_0.5-0.6	----	----	----	----
				Sampling date / time	06-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2402822-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	**16.9**	----	----	----	----	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----	
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----	
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----	
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----	
Organic Fibre	----	-	--	**No**	----	----	----	----	
Sample weight (dry)	----	0.01	g	**366**	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	----	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----	
Chromium	7440-47-3	2	mg/kg	**15**	----	----	----	----	
Copper	7440-50-8	5	mg/kg	**9**	----	----	----	----	
Lead	7439-92-1	5	mg/kg	**16**	----	----	----	----	
Nickel	7440-02-0	2	mg/kg	**4**	----	----	----	----	
Zinc	7440-66-6	5	mg/kg	**9**	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----	

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM-BH09_0.5-0.6 - 06-Dec-2023 00:00	A soil sample.

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2402822**	Page	: 1 of 3
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Jan-2024
Order number	: 60709736	Date Analysis Commenced	: 31-Jan-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024
Sampler	: AECOM Geotech		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5575555)									
ES2402822-001	ACM-BH09_0.5-0.6	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	15	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	7	53.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	8	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	14	10.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	19	71.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5575561)									
ES2402824-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	7.9	8.0	1.6	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5575556)									
ES2403106-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2402822-001	ACM-BH09_0.5-0.6	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5575555)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	99.9	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	93.8	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	122	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	102	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	110	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	105	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	97.9	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5575556)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	98.3	70.0	125

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5575555)							
ES2402822-001	ACM-BH09_0.5-0.6	EG005T: Arsenic	7440-38-2	50 mg/kg	98.1	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.3	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	97.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.3	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	116	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5575556)							
ES2402822-001	ACM-BH09_0.5-0.6	EG035T: Mercury	7439-97-6	5 mg/kg	97.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2402822**	Page	: 1 of 4
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 08-Jan-2024
Site	: Wyong	Issue Date	: 03-Sep-2024
Sampler	: AECOM Geotech	No. of samples received	: 1
Order number	: 60709736	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
ACM-BH09_0.5-0.6	----	----	----	01-Feb-2024	20-Dec-2023	**43**
EG035T: Total Recoverable Mercury by FIMS						
Soil Glass Jar - Unpreserved						
ACM-BH09_0.5-0.6	01-Feb-2024	03-Jan-2024	**29**	05-Feb-2024	03-Jan-2024	**33**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
Moisture Content	EA055	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
ACM-BH09_0.5-0.6	**06-Dec-2023**	**----**	----	----	**01-Feb-2024**	20-Dec-2023	×
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM-BH09_0.5-0.6	**06-Dec-2023**	**----**	----	----	**31-Jan-2024**	03-Jun-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
ACM-BH09_0.5-0.6	**06-Dec-2023**	**01-Feb-2024**	03-Jun-2024	✓	**02-Feb-2024**	03-Jun-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
ACM-BH09_0.5-0.6	**06-Dec-2023**	**01-Feb-2024**	03-Jan-2024	×	**05-Feb-2024**	03-Jan-2024	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	13	**7.69**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2402822**
Amendment : **1**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech		

Dates

Date Samples Received	: 08-Jan-2024 14:00	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 06-Feb-2024	Scheduled Reporting Date	: **06-Feb-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1'C
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **This is a rebatch of workorder ES2343534**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - S-02 8 Metals (incl. Digestion)
ES2402822-001	06-Dec-2023 00:00	ACM-BH09_0.5-0.6	✓	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA055: Moisture Content							
ACM-BH09_0.5-0.6	Soil Glass Jar - Unpreserved	----	20-Dec-2023	08-Jan-2024	×	30-Jan-2024	×
EG035T: Total Mercury by FIMS							
ACM-BH09_0.5-0.6	Soil Glass Jar - Unpreserved	03-Jan-2024	03-Jan-2024	08-Jan-2024	×	30-Jan-2024	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- Purchase Order Request Letter (PO_Request)	Email	eric.serttas@aecom.com

Mark Tiedeman

- *AU Certificate of Analysis - NATA (COA)	Email	mark.tiedeman@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.tiedeman@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.tiedeman@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.tiedeman@aecom.com
- Chain of Custody (CoC) (COC)	Email	mark.tiedeman@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	mark.tiedeman@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

30/01/24
9:00am

Zac Grima

From: Lucas RosasNavratil on behalf of Samples Sydney
Sent: Monday, 29 January 2024 7:56 PM
To: Zac Grima
Cc: ALSEnviro Sydney; rebatches.sydney; Jack Clifton
Subject: RE: Rebatch ES2343534

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Hi Zac,

Can you please action the below rebatch request?

Kind Regards,

right solutions. right partner.

Lucas Rosas-Navratil

Sample Receipt Supervisor (Afternoon Shift), Environmental Sydney, NSW

O: +61 2 8784 8555

Lucas.rosasnavratil@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Environmental Division
Sydney
Work Order Reference
ES2402822

Telephone : +61-2-8784 8555



From: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Sent: Monday, 29 January 2024 6:11 PM
To: rebatches.sydney <rebatches.sydney@ALSGlobal.com>
Subject: Rebatch ES2343534

Hi Team,

Could you please organise this rebatch?

8 Metals and Asbestos on sample ES2343534 012.

Sydney samples are in trays: S-589 S-590 S-591 SV-139 V-123c M-098c

Kind regards,

Sep Mahamad
Client Services Coordinator, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8504
Sepan.Mahamad@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Monday, January 29, 2024 5:23 PM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Subject: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2401671 | Overall Description: Rebatch of ES2341790, ES2343534, ES2343854, ES2344222, ES2344549, ES2344617

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please analyse ACM-BH09_0.6-0.7 (ES2343534-012) for metals and asbestos on standard TAT?

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM
Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

CERTIFICATE OF ANALYSIS

Work Order	: **ES2406391**	Page	: 1 of 16
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Feb-2024 20:20
Order number	: 60709736	Date Analysis Commenced	: 28-Feb-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024 12:37
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of sample BH04_0.2-0.3 have been confirmed by re-extraction and re-analysis.
- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 005, 008. All analysis results are as per the previous report.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004-009, 013-014. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
			Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit	ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**4.5**	**7.2**	**----**	**----**	**8.1**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	<1
Chromium	7440-47-3	2	mg/kg	**5**	**5**	----	----	**20**
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	<5
Lead	7439-92-1	5	mg/kg	**28**	**6**	----	----	**16**
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	**2**
Zinc	7440-66-6	5	mg/kg	**19**	**7**	----	----	**10**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.2**	<0.1	----	----	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
				Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit		ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
			Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit	ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	**1.5**
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	**0.7**
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	**1.0**
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	**3.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
				Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit		ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	**4.4**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	**2.0**
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	**2.1**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	**4.7**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	**1.7**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	**4.0**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	**3.7**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	**0.6**
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	**5.1**
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	**35.3**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	**5.9**
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	**5.9**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	**5.9**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	**130**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	**130**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
				Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit		ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**5.1**	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**7.6**	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**7.6**	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**3.3**	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	**23.6**	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	**10.9**	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	----	----	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	----	----	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	----	----	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	----	----	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	----	----	----	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	----	----	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	----	----	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	----	----	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	----	----	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	----	----	----	<0.0005

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH13A_0.6-0.7	R-BH13A_1.5-1.6	Trip Blank	Trip Spike Trip Spike 11	BH04_0.2-0.3
				Sampling date / time	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	27-Feb-2024 00:00
Compound	CAS Number	LOR	Unit		ES2406391-005	ES2406391-006	ES2406391-008	ES2406391-009	ES2406391-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	----	----	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	----	----	----	<0.0005
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	----	----	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	----	----	----	<0.0002
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		107	----	----	----	108
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		111	----	----	----	108
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		79.2	----	----	----	54.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		94.6	95.0	----	----	91.2
2-Chlorophenol-D4	93951-73-6	0.5	%		95.3	95.0	----	----	92.7
2.4.6-Tribromophenol	118-79-6	0.5	%		99.5	102	----	----	94.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		91.4	91.3	----	----	90.9
Anthracene-d10	1719-06-8	0.5	%		101	103	----	----	104
4-Terphenyl-d14	1718-51-0	0.5	%		92.8	92.4	----	----	92.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		89.8	82.4	75.8	84.3	86.0
Toluene-D8	2037-26-5	0.2	%		84.3	82.6	90.6	91.2	83.9
4-Bromofluorobenzene	460-00-4	0.2	%		92.1	95.2	96.1	98.9	92.1
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	----	----	----	102
13C8-PFOA	----	0.0002	%		----	----	----	----	115

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TSC_11 Trip Spike Control 11	----	----	----	----
			Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2406391-014	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	**5.2**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**8.2**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**8.1**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**3.5**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	**25.0**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	**11.6**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**84.2**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	**87.2**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**92.6**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240226	----	----	----	----
				Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2406391-007	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ **Total Polychlorinated biphenyls**	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240226	----	----	----	----
				Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2406391-007	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L		<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240226	----	----	----	----
				Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2406391-007	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.5	µg/L		<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240226	----	----	----	----
				Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2406391-007	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240226	----	----	----	----
				Sampling date / time	26-Feb-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2406391-007	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**69.1**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**74.3**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**50.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**20.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**38.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**28.2**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**58.7**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**59.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**63.3**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**90.8**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**90.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**103**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2406391**	Page	: 1 of 18
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Feb-2024
Order number	: 60709736	Date Analysis Commenced	: 28-Feb-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5639380)									
ES2406862-042	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	12	13.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	21	19	10.7	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	36	34	7.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	16	14.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	70	66	6.3	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5639392)									
ES2406391-010	BH04_0.2-0.3	EA055: Moisture Content	----	0.1 (1.0)*	%	8.1	6.4	23.9	No Limit
ES2406732-004	Anonymous	EA055: Moisture Content	----	0.1	%	2.2	2.7	19.8	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5639381)									
ES2406862-042	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5628993)									
ES2406248-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5628992)									
ES2406248-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5628992) - continued									
ES2406248-001	Anonymous	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.23	0.21	9.3	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5628992)									
ES2406248-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5628991)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5628991) - continued									
ES2406369-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2406248-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5628991)									
ES2406369-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5628991) - continued									
ES2406369-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2406248-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5628990)									
ES2406369-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2406248-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5632007)									
ES2406391-005	R-BH13A_0.6-0.7	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2406479-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5628990)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5628990) - continued									
ES2406369-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2406248-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5632007)									
ES2406391-005	R-BH13A_0.6-0.7	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2406479-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5632007)									
ES2406391-005	R-BH13A_0.6-0.7	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2406479-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5628908)									
ES2405809-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5628908)									
ES2405809-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5628908)									
ES2405809-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5628908) - continued									
ES2405809-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5634904)									
EN2401792-013	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.010	0.0	No Limit
ES2406538-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5635244)									
EN2401792-013	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2406663-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5632434)									
ES2406431-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
WN2402435-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5632434)									
ES2406431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
WN2402435-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5632434)									
ES2406431-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5632434) - continued									
ES2406431-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
WN2402435-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5639380)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	97.5	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	88.4	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	111	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.1	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	94.7	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	86.3	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5639381)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	92.5	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5628993)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	86.4	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5628992)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5628992) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	102	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5628992)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	104	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	92.1	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	88.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	100	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5628991)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	100	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	100.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	105	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	99.4	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	95.5	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	101	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5628991) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.6	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	48.1	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5628991)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	106	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	108	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	107	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	105	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	108	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	111	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	111	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	102	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	105	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	101	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	103	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	104	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	99.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5628990)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	92.9	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.6	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5632007)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.4	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5628990)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	93.7	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	101	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	87.3	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5632007)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.1	72.4	133
EP080: BTEXN (QCLot: 5632007)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.5	76.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5632007) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.5	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	102	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.8	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.2	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5628908)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.5	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.0	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5628908)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	96.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	77.6	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	76.5	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.9	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5628908)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	88.8	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	117	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	118	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	123	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5634904)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.4	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.4	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.5	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.8	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.0	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.7	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5635244)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.2	77.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5628957)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	81.4	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5628956)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	75.1	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	82.5	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	87.3	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	85.0	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	98.6	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	79.9	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	83.8	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	85.9	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	84.7	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	87.9	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	86.0	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	84.9	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	85.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	84.2	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	89.8	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	93.9	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	86.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	92.0	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	93.0	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	89.4	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	92.1	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5628956)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	101	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	79.0	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	25.2	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	82.5	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	96.7	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	89.0	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	78.6	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	88.8	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	81.2	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	81.4	75.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5628956) - continued								
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	76.7	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.0	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	82.0	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	89.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	83.5	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	91.1	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	86.2	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	88.4	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	91.6	51.6	128
EP075(SIM)A: Phenolic Compounds (QCLot: 5628954)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	51.9	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	75.7	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	73.5	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	68.0	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	73.1	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	73.7	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	67.5	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	73.2	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	76.5	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	71.0	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	66.9	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	41.1	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5628954)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	73.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.0	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	67.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	77.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	81.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	84.8	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	87.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	87.3	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	66.6	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	68.7	62.5	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5628954) - continued								
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	69.0	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	78.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	67.1	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	68.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	67.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	70.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5628955)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	77.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	103	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5632434)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5628955)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	70.0	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	67.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	98.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5632434)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.6	75.0	127
EP080: BTEXN (QCLot: 5632434)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.0	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	104	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5639381)							
ES2406391-005	R-BH13A_0.6-0.7	EG035T: Mercury	7439-97-6	5 mg/kg	101	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5628993)							
ES2406248-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5628992)							
ES2406248-001	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	108	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	102	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	110	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	89.3	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5628992)							
ES2406248-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	87.0	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	108	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	104	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	110	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	98.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5628991)							
ES2406248-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	99.6	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	100	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	111	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	102	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	92.5	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5628991)							
ES2406248-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	110	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	116	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5628990)							
ES2406248-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	99.4	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	122	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	127	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5632007)							
ES2406391-005	R-BH13A_0.6-0.7	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.2	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5628990)							
ES2406248-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	129	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	101	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5632007)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5632007) - continued							
ES2406391-005	R-BH13A_0.6-0.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.7	61.1	142
EP080: BTEXN (QCLot: 5632007)							
ES2406391-005	R-BH13A_0.6-0.7	EP080: Benzene	71-43-2	2.5 mg/kg	100	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	99.3	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	106	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	102	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	107	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	90.3	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5628908)							
ES2405809-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	83.6	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	117	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	80.9	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5628908)							
ES2405809-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	79.6	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	77.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	93.6	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	115	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5628908)							
ES2405809-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	76.3	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	84.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	85.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	81.4	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5634904)							
EN2401792-014	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	104	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.2	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	91.8	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.4	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	92.7	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.4	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5635244)							
EN2401792-014	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	90.8	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5632434)							
ES2406431-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5632434)							
ES2406431-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	79.5	70.0	130
EP080: BTEXN (QCLot: 5632434)							
ES2406431-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	89.1	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	99.6	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	92.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.3	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.4	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	80.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2406391**	Page	: 1 of 10
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Feb-2024
Site	: Wyong	Issue Date	: 03-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 14
Order number	: 60709736	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Total Mercury by FIMS	EG035T	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Total Metals by ICP-AES	EG005T	0	20	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) R-BH13A_0.6-0.7, R-BH13A_1.5-1.6	**26-Feb-2024**	**----**	----	----	**04-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EA055) BH04_0.2-0.3	**27-Feb-2024**	**----**	----	----	**04-Mar-2024**	12-Mar-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) R-BH13A_0.6-0.7, R-BH13A_1.5-1.6	**26-Feb-2024**	**05-Mar-2024**	24-Aug-2024	✓	**05-Mar-2024**	24-Aug-2024	✓
Soil Glass Jar - Unpreserved (EG005T) BH04_0.2-0.3	**27-Feb-2024**	**05-Mar-2024**	25-Aug-2024	✓	**05-Mar-2024**	25-Aug-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) R-BH13A_0.6-0.7, R-BH13A_1.5-1.6	**26-Feb-2024**	**05-Mar-2024**	25-Mar-2024	✓	**06-Mar-2024**	25-Mar-2024	✓
Soil Glass Jar - Unpreserved (EG035T) BH04_0.2-0.3	**27-Feb-2024**	**05-Mar-2024**	26-Mar-2024	✓	**06-Mar-2024**	26-Mar-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) R-BH13A_0.6-0.7	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP066) BH04_0.2-0.3	**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) R-BH13A_0.6-0.7	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP068) BH04_0.2-0.3	**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) R-BH13A_0.6-0.7	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP068) BH04_0.2-0.3	**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH13A_0.6-0.7	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH04_0.2-0.3	**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH13A_0.6-0.7, R-BH13A_1.5-1.6	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH04_0.2-0.3	**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**05-Mar-2024**	13-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) R-BH13A_0.6-0.7,	R-BH13A_1.5-1.6	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH13A_1.5-1.6,	Trip Blank	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**01-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH13A_0.6-0.7		**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**04-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH04_0.2-0.3		**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH04_0.2-0.3		**27-Feb-2024**	**29-Feb-2024**	12-Mar-2024	✓	**01-Mar-2024**	12-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071) R-BH13A_0.6-0.7,	R-BH13A_1.5-1.6	**26-Feb-2024**	**04-Mar-2024**	11-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH13A_1.5-1.6,	Trip Blank	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**01-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH13A_0.6-0.7		**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**04-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH04_0.2-0.3		**27-Feb-2024**	**04-Mar-2024**	12-Mar-2024	✓	**04-Mar-2024**	13-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH04_0.2-0.3		**27-Feb-2024**	**29-Feb-2024**	12-Mar-2024	✓	**01-Mar-2024**	12-Mar-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) R-BH13A_1.5-1.6, Trip Spike - Trip Spike 11,	Trip Blank, TSC_11 - Trip Spike Control 11	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**01-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) R-BH13A_0.6-0.7		**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**04-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH04_0.2-0.3		**27-Feb-2024**	**29-Feb-2024**	12-Mar-2024	✓	**01-Mar-2024**	12-Mar-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) BH04_0.2-0.3		**27-Feb-2024**	**28-Feb-2024**	25-Aug-2024	✓	**29-Feb-2024**	08-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) BH04_0.2-0.3		**27-Feb-2024**	**28-Feb-2024**	25-Aug-2024	✓	**29-Feb-2024**	08-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) BH04_0.2-0.3		**27-Feb-2024**	**28-Feb-2024**	25-Aug-2024	✓	**29-Feb-2024**	08-Apr-2024	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) BH04_0.2-0.3		**27-Feb-2024**	**28-Feb-2024**	25-Aug-2024	✓	**29-Feb-2024**	08-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240226	**26-Feb-2024**	**01-Mar-2024**	24-Aug-2024	✓	**01-Mar-2024**	24-Aug-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240226	**26-Feb-2024**	**----**	----	----	**01-Mar-2024**	25-Mar-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066)							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**04-Mar-2024**	08-Apr-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068)							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**05-Mar-2024**	08-Apr-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**05-Mar-2024**	08-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**04-Mar-2024**	08-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**04-Mar-2024**	08-Apr-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**04-Mar-2024**	08-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240226	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**29-Feb-2024**	11-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240226	**26-Feb-2024**	**28-Feb-2024**	04-Mar-2024	✓	**04-Mar-2024**	08-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240226	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**29-Feb-2024**	11-Mar-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240226	**26-Feb-2024**	**29-Feb-2024**	11-Mar-2024	✓	**29-Feb-2024**	11-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	0	20	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2406391**
Amendment : **2**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 27-Feb-2024 20:20	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 06-Mar-2024	Scheduled Reporting Date	: **06-Mar-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 4.2'C, 1.9'C, 2.4'C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 14 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2406391-009 : [26-Feb-2024] : Trip Spike - Trip Spike 11
ES2406391-014 : [26-Feb-2024] : TSC_11 - Trip Spike Control 11

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2406391-001	26-Feb-2024 00:00	R_BH13_0.0-0.1	✓					
ES2406391-002	26-Feb-2024 00:00	R_BH13_0.8-0.9	✓					
ES2406391-003	26-Feb-2024 00:00	R_BH13_1.4-1.5	✓					
ES2406391-004	26-Feb-2024 00:00	R-BH13A_0.3-0.4	✓					
ES2406391-005	26-Feb-2024 00:00	R-BH13A_0.6-0.7		✓			✓	
ES2406391-006	26-Feb-2024 00:00	R-BH13A_1.5-1.6		✓				✓
ES2406391-008	26-Feb-2024 00:00	Trip Blank				✓		
ES2406391-009	26-Feb-2024 00:00	Trip Spike Trip Spi...			✓			
ES2406391-010	27-Feb-2024 00:00	BH04_0.2-0.3		✓			✓	
ES2406391-011	27-Feb-2024 00:00	BH04_0.8-0.9	✓					
ES2406391-012	27-Feb-2024 00:00	BH04_1.4-1.5	✓					
ES2406391-014	26-Feb-2024 00:00	TSC_11 Trip Spike C...			✓			

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)
ES2406391-010	27-Feb-2024 00:00	BH04_0.2-0.3	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-19T TRH/BTEXN/PAH/Phenols/OC/OP/PCB/8 metals
ES2406391-007	26-Feb-2024 00:00	QC300_20240226	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2406391-013	26-Feb-2024 00:00	QC300_20240227	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.mcgrath@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL ~~480~~ 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com, n	KATE McGRATH
RESULTS REQUIRED (Date): ~~3 days TAT~~ STANDARD	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

	SAMPLE INFORMATION (note: S = Soil, W=Water)				CONTAINER INFORMATION		Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	OC-C9 / BTEXN	PFAS-Short Suite					HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	R-BH13-00-0.1	S	26/2/24	AM	J, ZB	1,1													X
2	-0.8-0.9																		X
3	-1.4-1.5																		X
4	R-CPT08-0.3-0.4																		X
5	-0.6-0.7									X	X								
6	-1.5-1.6									X									
7	QC300-20240226	W			V, AG, P	2,1,1				X	X								
8	TRIP BLANK/SPIKE	S			J	1,1						X							
10	BH04-0.2-0.3		27/2/24	AM	J, ZB, PF	1,1,1				X	X			X					
11	-0.8-0.9				J, ZB,	1,1													X
12	-1.4-1.5																		X
13	QC300-20240227	W			V, AG, P, PF	3,1,1													X
14	TSC-11		26/2/24																

Environmental Division
Sydney
Work Order Reference
ES2406391

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY			METHOD OF SHIPMENT
Name: ERIC SERTTAS		Name:	Date:	Date: 27/2/24	Con' Note No:
Of:	Time: 27/2/24	Of:	Time:	Time: 10 20	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

CERTIFICATE OF ANALYSIS

Work Order	: **ES2407037**	Page	: 1 of 16
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024 19:29
Order number	: 60709736	Date Analysis Commenced	: 06-Mar-2024
C-O-C number	: ----	Issue Date	: 08-Apr-2024 09:27
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 12		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG005T: Poor matrix spike recovery was obtained for Arsenic and Cadmium on sample ES240600-001. Confirmed by reanalysis.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (05/04/2024): This report has been amended as a result of a request to change sampling dates received from Eric Serttas on 05/04/2024, for samples 008. All analysis results are as per the previous report.
- Amendment (08/04/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Eric Serttas on 06/04/2024, for samples 008. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.

- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
				Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit		ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		9.4	4.9	----	11.8	8.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	No	----	----
Asbestos (Trace)	1332-21-4	-	-		----	----	No	----	----
Asbestos Type	1332-21-4	-	--		----	----	-	----	----
Synthetic Mineral Fibre	----	-	--		----	----	No	----	----
Organic Fibre	----	-	--		----	----	No	----	----
Sample weight (dry)	----	0.01	g		----	----	723	----	----
APPROVED IDENTIFIER:	----	-	--		----	----	B.SCHRADER	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg		5	8	----	10	14
Copper	7440-50-8	5	mg/kg		<5	8	----	7	6
Lead	7439-92-1	5	mg/kg		6	7	----	24	27
Nickel	7440-02-0	2	mg/kg		<2	<2	----	4	4
Zinc	7440-66-6	5	mg/kg		6	6	----	24	22
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
			Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit	ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	<0.05	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	<0.05	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	<0.2	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	----	----	<0.05	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg	----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
			Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit	ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg	----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg	----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg	----	----	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg	----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	<2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
				Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit		ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	----	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	----	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	----	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
				Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit		ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		----	----	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	----	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		----	----	----	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**99.2**	**103**	----	**87.2**	**82.1**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	**101**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	**72.5**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	**89.1**	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	**82.8**	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	**61.4**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH13_1.0-1.2	R_BH13_2.8-3.0	ACM_BH04_0.1-0.2	ACM_BH04_0.5-0.6	ACM_BH04_1.4-1.5
				Sampling date / time	28-Feb-2024 09:00	28-Feb-2024 09:00	28-Feb-2024 15:00	28-Feb-2024 15:00	28-Feb-2024 15:00
Compound	CAS Number	LOR	Unit		ES2407037-001	ES2407037-002	ES2407037-004	ES2407037-005	ES2407037-006
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	**85.2**	----
Anthracene-d10	1719-06-8	0.5	%		----	----	----	**99.3**	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	**96.8**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	**80.8**	----
Toluene-D8	2037-26-5	0.2	%		----	----	----	**84.0**	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	**95.0**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
			Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit	ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.0**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----
Organic Fibre	----	-	--	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**274**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**9**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**51**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**33**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
			Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit	ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
			Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit	ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
				Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit		ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**2.0**	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**2.8**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**2.2**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.8**	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**0.8**	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**0.9**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**0.9**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.5**	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.6**	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**11.5**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**1.1**	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**1.4**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.7**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
				Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit		ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**5.3**	**5.1**	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**6.4**	**8.4**	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**6.9**	**8.8**	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**3.0**	**3.8**	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	**21.6**	**26.1**	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**9.9**	**12.6**	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**88.8**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**101**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**96.3**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**90.2**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.7**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**54.5**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH09_0.6-0.7	TRIP BLANK	TRIP SPIKE	TSC	----
				Sampling date / time	04-Mar-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	26-Feb-2024 09:00	----
Compound	CAS Number	LOR	Unit		ES2407037-008	ES2407037-010	ES2407037-011	ES2407037-012	--------
					Result	Result	Result	Result	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**81.4**	**----**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**86.8**	**----**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**87.4**	**----**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**86.0**	**98.0**	**80.4**	**91.0**	**----**
Toluene-D8	2037-26-5	0.2	%		**95.2**	**86.3**	**108**	**85.1**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**93.1**	**96.3**	**98.6**	**98.7**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM_BH04_0.1-0.2 - 28-Feb-2024 15:00	A soil sample.
EA200: Description	R-BH09_0.6-0.7 - 04-Mar-2024 09:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2407037**	Page	: 1 of 13
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 06-Mar-2024
C-O-C number	: ----	Issue Date	: 08-Apr-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 12		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5644521)									
ES2406009-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	8	6	27.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	323	366	12.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	290	288	0.5	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	36	35	4.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	3950	4070	2.9	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	286	262	8.8	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	13200	12400	6.4	0% - 20%
ES2406888-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	23	30	26.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	10	76.2	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	13	77.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	9	58.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	8	14	46.3	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5644523)									
ES2407151-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	36	33.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	18	20	15.3	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	11	9.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	43	42	3.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	47	64.1	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5644523) - continued									
ES2407151-009	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	44	52	15.5	0% - 50%
ES2407037-006	ACM_BH04_1.4-1.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	9	39.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	29	6.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	22	20	6.2	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5643347)									
ES2407030-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	19.3	13.3	36.4	0% - 50%
ES2407152-009	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	9.3	5.2	56.1	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5644538)									
ES2406878-004	Anonymous	EA055: Moisture Content	----	0.1	%	9.2	10.7	14.7	0% - 20%
ES2406914-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	17.5	14.7	17.1	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5644539)									
ES2407045-002	Anonymous	EA055: Moisture Content	----	0.1	%	16.1	16.3	1.0	0% - 20%
ES2407151-009	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	13.5	15.1	11.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5644522)									
ES2406009-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.0	No Limit
ES2406888-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5644524)									
ES2407151-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2407037-006	ACM_BH04_1.4-1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5640639)									
ES2406952-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5640638)									
ES2406952-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5640638) - continued									
ES2406952-001	Anonymous	EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5640638)									
ES2406952-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5640637)									
EW2400927-005	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5640637) - continued									
EW2400927-005	Anonymous	EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2406952-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5640637)									
EW2400927-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5640637) - continued									
EW2400927-005	Anonymous	EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2406952-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5640636)									
EW2400927-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2406952-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5643478)									
EW2400997-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2406220-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5640636)									
EW2400927-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2406952-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5643478)									
EW2400997-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2406220-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5643478)									
EW2400997-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2406220-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5644521)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	126	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	117	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	90.8	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	94.0	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	96.8	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	85.8	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5644523)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	113	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	119	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	130	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	112	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	114	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	106	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5644522)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	108	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5644524)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	108	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5640639)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	84.4	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5640638)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5640638) - continued								
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.8	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.5	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	88.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5640638)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	75.6	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.2	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	73.6	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5640637)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5640637) - continued								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	97.0	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	90.2	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	91.8	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	86.5	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	80.8	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	94.0	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.1	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	90.7	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.9	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	82.8	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	84.8	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	47.8	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5640637)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.0	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	90.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.0	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	92.1	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.2	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	93.8	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	90.7	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	99.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	98.0	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.9	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	93.9	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	94.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5640636)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	86.1	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	92.0	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	94.1	71.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5643478)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.4	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5640636)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	89.9	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	91.9	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	97.8	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5643478)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.1	72.4	133
EP080: BTEXN (QCLot: 5643478)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.6	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.2	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	94.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.6	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	100	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	102	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5644521)							
ES2406009-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	# 58.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	# 53.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	# Not Determined	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	# Not Determined	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	79.4	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	# Not Determined	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5644523)							
ES2407037-006	ACM_BH04_1.4-1.5	EG005T: Arsenic	7440-38-2	50 mg/kg	83.4	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5644523) - continued							
ES2407037-006	ACM_BH04_1.4-1.5	EG005T: Cadmium	7440-43-9	50 mg/kg	80.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	80.6	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	79.1	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	88.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	89.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5644522)							
ES2406009-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5644524)							
ES2407037-006	ACM_BH04_1.4-1.5	EG035T: Mercury	7439-97-6	5 mg/kg	89.9	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5640639)							
ES2406952-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	120	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5640638)							
ES2406952-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	92.3	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	95.4	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	95.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	79.4	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	81.9	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5640638)							
ES2406952-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	76.1	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	90.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	90.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	92.7	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	85.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5640637)							
ES2406952-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.0	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	89.0	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.4	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	82.5	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	91.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5640637)							
ES2406952-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.7	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	103	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5640636)							
ES2406952-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	104	73.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5640636) - continued							
ES2406952-001	Anonymous	EP071: C15 - C28 Fraction	----	3100 mg/kg	113	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	120	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5643478)							
ES2406220-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	109	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5640636)							
ES2406952-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	115	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	119	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5643478)							
ES2406220-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	61.1	142
EP080: BTEXN (QCLot: 5643478)							
ES2406220-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	120	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	105	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	116	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	117	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	115	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	105	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2407037**	Page	: 1 of 7
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024
Site	: Wyong	Issue Date	: 08-Apr-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 12
Order number	: 60709736	No. of samples analysed	: 9

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Arsenic**	7440-38-2	58.6 %	70.0-130%	**Recovery less than lower data quality objective**
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Cadmium**	7440-43-9	53.8 %	70.0-130%	**Recovery less than lower data quality objective**
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Chromium**	7440-47-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Nickel**	7440-02-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2406009--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) R-BH09_0.6-0.7	**04-Mar-2024**	**----**	----	**----**	**06-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EA055) R_BH13_1.0-1.2, R_BH13_2.8-3.0, ACM_BH04_0.5-0.6, ACM_BH04_1.4-1.5	**28-Feb-2024**	**----**	----	**----**	**06-Mar-2024**	13-Mar-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH09_0.6-0.7	**04-Mar-2024**	**----**	----	**----**	**06-Mar-2024**	31-Aug-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM_BH04_0.1-0.2	**28-Feb-2024**	**----**	----	**----**	**06-Mar-2024**	26-Aug-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	31-Aug-2024	✓	**07-Mar-2024**	31-Aug-2024	✓
Soil Glass Jar - Unpreserved (EG005T) R_BH13_1.0-1.2, R_BH13_2.8-3.0, ACM_BH04_0.5-0.6, ACM_BH04_1.4-1.5	**28-Feb-2024**	**06-Mar-2024**	26-Aug-2024	✓	**07-Mar-2024**	26-Aug-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	01-Apr-2024	✓	**07-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) R_BH13_1.0-1.2, R_BH13_2.8-3.0, ACM_BH04_0.5-0.6, ACM_BH04_1.4-1.5	**28-Feb-2024**	**06-Mar-2024**	27-Mar-2024	✓	**08-Mar-2024**	27-Mar-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP066) R_BH13_1.0-1.2, R_BH13_2.8-3.0, ACM_BH04_0.5-0.6, ACM_BH04_1.4-1.5	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	15-Apr-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP068) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	15-Apr-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP068) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	15-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	15-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	15-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**07-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**26-Feb-2024**	**06-Mar-2024**	11-Mar-2024	✓	**07-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	13-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**07-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**08-Mar-2024**	15-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**26-Feb-2024**	**06-Mar-2024**	11-Mar-2024	✓	**07-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	13-Mar-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) R-BH09_0.6-0.7	**04-Mar-2024**	**06-Mar-2024**	18-Mar-2024	✓	**07-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE, TSC	**26-Feb-2024**	**06-Mar-2024**	11-Mar-2024	✓	**07-Mar-2024**	11-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_BH04_0.5-0.6	**28-Feb-2024**	**06-Mar-2024**	13-Mar-2024	✓	**07-Mar-2024**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	6	55	**10.91**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2407037**		
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 04-Mar-2024 19:29	Issue Date	: 08-Apr-2024
Client Requested Due Date	: 11-Mar-2024	Scheduled Reporting Date	: **11-Mar-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.2, 1.8, 2.4 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 12 / 9

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2407037-001	28-Feb-2024 09:00	R_BH13_1.0-1.2	✓		✓	✓		
ES2407037-002	28-Feb-2024 09:00	R_BH13_2.8-3.0	✓		✓	✓		
ES2407037-004	28-Feb-2024 15:00	ACM_BH04_0.1-0.2		✓				
ES2407037-005	28-Feb-2024 15:00	ACM_BH04_0.5-0.6	✓					✓
ES2407037-006	28-Feb-2024 15:00	ACM_BH04_1.4-1.5	✓		✓	✓		
ES2407037-008	04-Mar-2024 09:00	R-BH09_0.6-0.7	✓	✓				✓
ES2407037-010	26-Feb-2024 09:00	TRIP BLANK					✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP080 BTEXN
ES2407037-011	26-Feb-2024 09:00	TRIP SPIKE	✓
ES2407037-012	26-Feb-2024 09:00	TSC	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2407037-003	28-Feb-2024 09:00	QC300_20240228	✓
ES2407037-007	28-Feb-2024 09:00	QC300_20240228	✓
ES2407037-009	04-Mar-2024 09:00	QC300_20240304	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.mcgrath@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE:
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedemen@aecom.com KATE McGRATH	
RESULTS REQUIRED (Date): 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected", Extra volume for QC or trace LORs etc.

TAT

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	OS-09 / BTEXN	Metals/PCB	Asbestos/DAS/			HOLD
1	R-BH13_1.0-1.2	S	28/2	Am	J, ZLB	1,1								X				
2	-2.8-3.0	↓	↓	↓	↓	↓												
3	QC300-20240228	W	↓	↓	V, AG, P	2,1,1												
4	ACM-BH04-0.1-0.2	S		PM	J, ZLB	1,1									X			
5	-0.5-0.6	↓		↓	↓	↓				X	X							
6	-1.4-1.5	↓	↓	↓	↓	↓												
7	QC300-20240229	W	29/2	AM	V, AG, P	2,1,1												
8	R-BH03-0.6-0.8	S	4/3	AM	J, ZLB	1,1				X	X				X			
9	QC300-20240304	W	↓	AM	V, AG, P	2,1,1												
10	TRIP BLANK/TRIP SPIKE	S	—	—	J	1,1												
11	TSC																	

Asbestos / Newcastle
Subcon / Forward Lab / Split WO:
Lab Analysis:
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2407037
Attached By PO / Internal Shee

Environmental Division Sydney
Work Order Reference
ES2407037

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY	
Name: ERIC SERTTAS	4/3/24	Name: LUCAS	Date: 4/3/24	Name:	Dat
Of:	Time: Am	Of: IG	Time: 1929	Of:	Tin

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar =

CERTIFICATE OF ANALYSIS

Work Order	: **ES2407462**	Page	: 1 of 9
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 05-Mar-2024 19:30
Order number	: 60709736	Date Analysis Commenced	: 08-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 15:13
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 7		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG005T: Poor precision was obtained for Chromium on sample ES2402026 #20. Confirmed by redigestion and reanalysis.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 003. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
			Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.4**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**10**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**58**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**27**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**7**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**41**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
				Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
				Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
				Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.5**	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**0.6**	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.5**	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**1.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**1.0**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.3**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**120**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**120**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
				Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**3.9**	**4.6**	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**5.3**	**6.2**	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**5.1**	**5.9**	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**2.4**	**2.9**	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	**16.7**	**19.6**	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	**7.5**	**8.8**	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**83.0**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**89.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**78.8**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**65.3**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**72.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**69.1**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**73.0**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**74.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**71.2**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**76.3**	**77.5**	**71.8**	**75.2**	----
Toluene-D8	2037-26-5	0.2	%		**74.4**	**95.4**	**95.0**	**102**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-BH17_0.5-0.6	TRIP BLANK	TRIP SPIKE -10	TRIP SPIKE CONTROL - 10	----
			Sampling date / time	04-Mar-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	26-Feb-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2407462-001	ES2407462-005	ES2407462-006	ES2407462-007	--------
				Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	**79.2**	**103**	**99.0**	**104**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

QUALITY CONTROL REPORT

Work Order	: **ES2407462**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 05-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 08-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 7		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5652975)									
ES2402026-020	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	# 65	93.7	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	6	27.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES2407455-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	78	67	15.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	124	114	8.6	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	36	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5652981)									
ES2407455-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	42.0	41.7	0.8	0% - 20%
ES2407568-003	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	13.6	10.9	22.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5652976)									
ES2402026-020	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2407455-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5649134)									
ES2407462-001	A-BH17_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5649137)									
ES2407462-001	A-BH17_0.5-0.6	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5649137)									
ES2407462-001	A-BH17_0.5-0.6	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5649137) - continued									
ES2407462-001	A-BH17_0.5-0.6	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5649136)									
ES2407462-001	A-BH17_0.5-0.6	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5649136)									
ES2407462-001	A-BH17_0.5-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	0.6	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5649136) - continued									
ES2407462-001	A-BH17_0.5-0.6	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.6	<0.5	105	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.6	<0.5	26.8	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5649135)									
ES2407462-001	A-BH17_0.5-0.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5649501)									
ES2407024-062	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2407362-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5653046)									
ES2407638-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2407722-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5649135)									
ES2407462-001	A-BH17_0.5-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	120	130	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5649501)									
ES2407024-062	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2407362-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5653046)									
ES2407638-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2407722-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5649501)									
ES2407024-062	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2407362-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5649501) - continued									
ES2407362-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5653046)									
ES2407638-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2407722-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5652975)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	88.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	70.1	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	104	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	95.8	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	86.8	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	88.9	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	90.4	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5652976)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	97.0	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5649134)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	90.1	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5649137)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.7	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	78.7	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	74.1	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5649137) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.5	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	78.6	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5649137)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	102	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	74.7	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.1	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	75.0	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	76.7	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.5	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	79.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	71.3	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5649136)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	90.5	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	88.9	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	83.9	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	74.8	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	94.8	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	89.0	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	93.1	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.9	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	89.9	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5649136) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	86.8	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	35.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5649136)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	104	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	106	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	112	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	113	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.6	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	104	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	98.2	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.2	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	99.3	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	97.5	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	99.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5649135)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	106	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	107	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5649501)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.9	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5653046)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.2	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5649135)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	111	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	109	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5649501)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	97.1	72.4	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5653046)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	85.8	72.4	133
EP080: BTEXN (QCLot: 5649501)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.1	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.0	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.8	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.6	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.5	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.6	78.8	122
EP080: BTEXN (QCLot: 5653046)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	98.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.0	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.1	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	97.9	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	100	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.7	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5652975)							
ES2402026-020	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	112	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	108	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	112	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5652976)							
ES2402026-020	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	80.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5649134)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5649134) - continued							
ES2407462-001	A-BH17_0.5-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	104	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5649137)							
ES2407462-001	A-BH17_0.5-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	86.2	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	77.7	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	96.1	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	88.4	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	95.2	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	71.5	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5649137)							
ES2407462-001	A-BH17_0.5-0.6	EP068: Diazinon	333-41-5	0.5 mg/kg	83.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	82.0	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	75.2	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	76.8	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5649136)							
ES2407462-001	A-BH17_0.5-0.6	EP075(SIM): Phenol	108-95-2	10 mg/kg	98.0	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.3	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	73.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	94.6	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	52.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5649136)							
ES2407462-001	A-BH17_0.5-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	103	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	105	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5649135)							
ES2407462-001	A-BH17_0.5-0.6	EP071: C10 - C14 Fraction	----	480 mg/kg	104	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	106	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	98.8	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5649501)							
ES2407024-062	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	78.9	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5653046)							
ES2407638-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	72.5	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5649135)							
ES2407462-001	A-BH17_0.5-0.6	EP071: >C10 - C16 Fraction	----	860 mg/kg	96.0	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	103	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	97.4	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5649501)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5649501) - continued							
ES2407024-062	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5653046)							
ES2407638-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	68.4	61.1	142
EP080: BTEXN (QCLot: 5649501)							
ES2407024-062	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.9	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	84.3	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.7	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.3	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.0	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.2	61.1	115
EP080: BTEXN (QCLot: 5653046)							
ES2407638-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	97.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	95.2	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	94.8	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	96.7	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.7	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2407462**	Page	: 1 of 5
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 05-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 7
Order number	: 60709736	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2402026--020	Anonymous	**Chromium**	7440-47-3	93.7 %	0% - 20%	**RPD exceeds LOR based limits**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
A-BH17_0.5-0.6	**04-Mar-2024**	**----**	----	**----**	**11-Mar-2024**	18-Mar-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
A-BH17_0.5-0.6	**04-Mar-2024**	**11-Mar-2024**	31-Aug-2024	✓	**12-Mar-2024**	31-Aug-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
A-BH17_0.5-0.6	**04-Mar-2024**	**11-Mar-2024**	01-Apr-2024	✓	**13-Mar-2024**	01-Apr-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**12-Mar-2024**	21-Apr-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**13-Mar-2024**	21-Apr-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**13-Mar-2024**	21-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**12-Mar-2024**	21-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**12-Mar-2024**	21-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) A-BH17_0.5-0.6	**04-Mar-2024**	**11-Mar-2024**	18-Mar-2024	✓	**11-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**12-Mar-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**26-Feb-2024**	**08-Mar-2024**	11-Mar-2024	✓	**09-Mar-2024**	11-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) A-BH17_0.5-0.6	**04-Mar-2024**	**11-Mar-2024**	18-Mar-2024	✓	**11-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) A-BH17_0.5-0.6	**04-Mar-2024**	**12-Mar-2024**	18-Mar-2024	✓	**12-Mar-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**26-Feb-2024**	**08-Mar-2024**	11-Mar-2024	✓	**09-Mar-2024**	11-Mar-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) A-BH17_0.5-0.6	**04-Mar-2024**	**11-Mar-2024**	18-Mar-2024	✓	**11-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE -10, TRIP SPIKE CONTROL - 10	**26-Feb-2024**	**08-Mar-2024**	11-Mar-2024	✓	**09-Mar-2024**	11-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2407462**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 05-Mar-2024 19:30	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 13-Mar-2024	Scheduled Reporting Date	: **13-Mar-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 5.3'C, 3.4'C, 3.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 7 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Coal Tar to be subcontracted to Envirolab.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2407462-002 : [04-Mar-2024] : A-BH17_0.5-0.6 - Received as A-BH17_0.0
ES2407462-007 : [26-Feb-2024] : TRIP SPIKE CONTROL - 10

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2407462-001	04-Mar-2024 00:00	A-BH17_0.5-0.6		✓				✓
ES2407462-002	04-Mar-2024 00:00	A-BH17_0.5-0.6 Rece...				✓		
ES2407462-003	05-Mar-2024 00:00	ACM_BH04_2.0-2.1	✓					
ES2407462-005	26-Feb-2024 00:00	TRIP BLANK					✓	
ES2407462-006	26-Feb-2024 00:00	TRIP SPIKE -10			✓			
ES2407462-007	26-Feb-2024 00:00	TRIP SPIKE CONTROL -...			✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2407462-004	05-Mar-2024 00:00	QC300_20240305	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- Chromatogram (CHROM)	Email	kate.mcgrath@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.mcgrath@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

Envirolab Services Pty Ltd
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 346059

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2407462**
Number of Samples	1 Coal Tar
Date samples received	08/03/2024
Date completed instructions received	08/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	15/03/2024
Date of Issue	13/03/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		346059-1
Your Reference	UNITS	A_BH17_0.0-0.05
Date Sampled		04/03/2024
Type of sample		Coal Tar
Date prepared	-	11/03/2024
Date analysed	-	11/03/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: Eric Serttas	ADDRESS / OFFICE:	SAMPLER: AECOM Geotech Team			Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 685	PHONE:		ALS
PROJECT NUMBER & TASK CODE: 60709736 - CDRL 400	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , mark.tiedeman@aecom.com - KATE MCGRATH			
RESULTS REQUIRED (Date): ~~3 day TAT~~ STANDARD TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)			

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Foreign Material (ENM Guideline), Electrical Conductivity, and pH	Asbestos Quantification (as per NEPM)	pH, Cation Exchange Capacity and Clay %	TRH, BTEXN, PAH, and Metals	Phenols, OC, OP, PCB	TRH, BTEXN, Metals	OS-C9 / BTEXN	Coal Tar					HOLD
1	A-BH17_0.5-0.6	S	4/3/24	PM	J, ZLB	1,1				X	X								A
2	-0.0-0.05	M	↓	↓	J	1								X					
3	ACM-BH04-1.8-2.0	S	5/3/24	AM	J, ZLB	1,1													X
4	QC300-20240305	W	5/3/24	AM	V, AG, P	2,1,1													X
5	TRIP BLANK / ~~SOIL~~		26.2.24																
6	TRIP SPIKE-10	S	26.2.24																
7	TRIP CONTROL SPIKE-10	S	26.2.24																
	Received as A-BH17-0.0-																		

Environmental Division
Sydney
Work Order Reference
ES2407462

Telephone : +61-2-8784 8555

Subcon / Forward Lab / Split WO
Lab / Analysis: Envirolab - coal Tar
Organised By / Date:
Relinquished By / Date:
Courier:
WO No: ES2407462
Attach By PO / Internal Sheet:

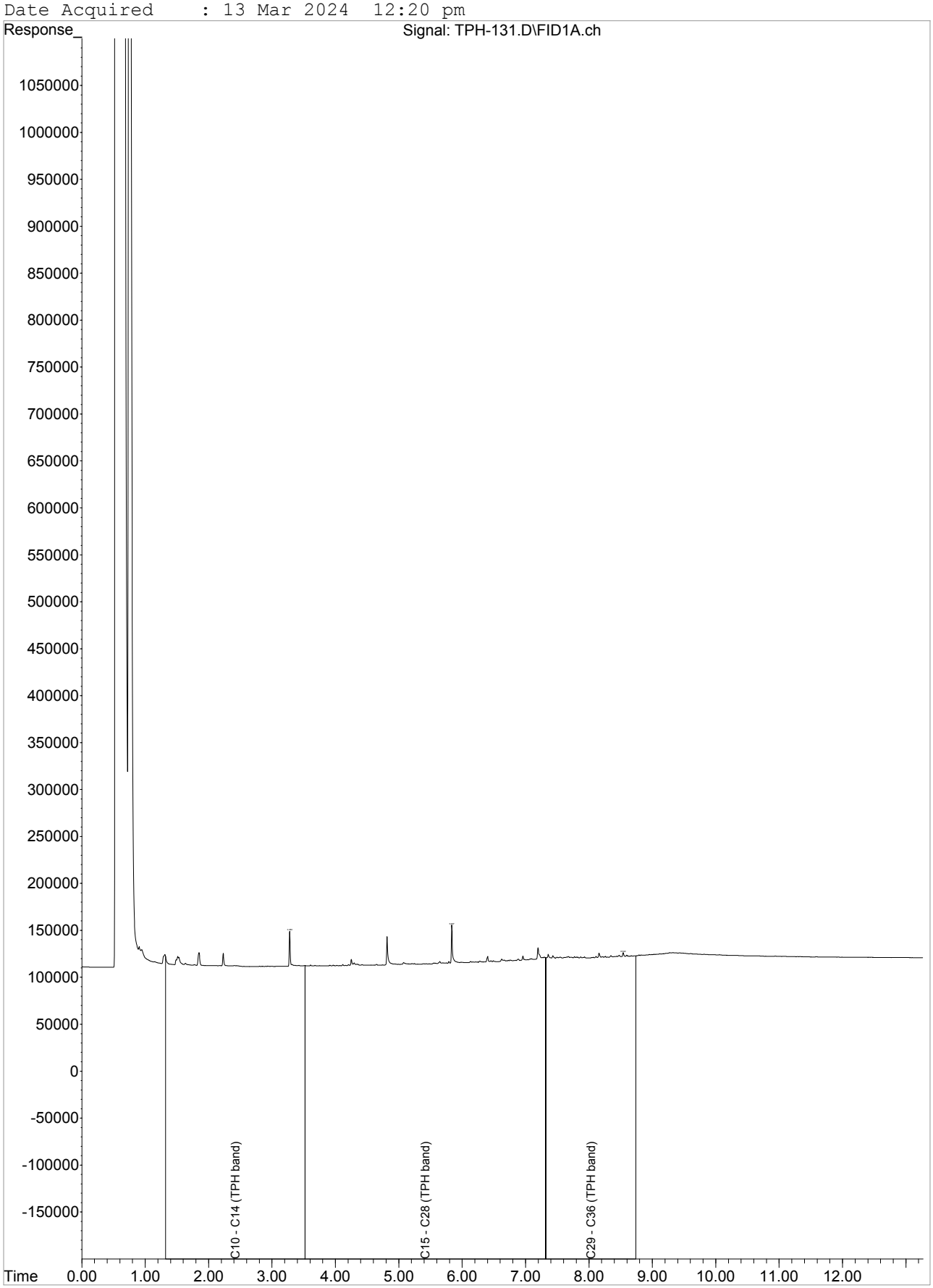
RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:		Name:	Date:	Name: Wade	Date: 5/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: AP	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

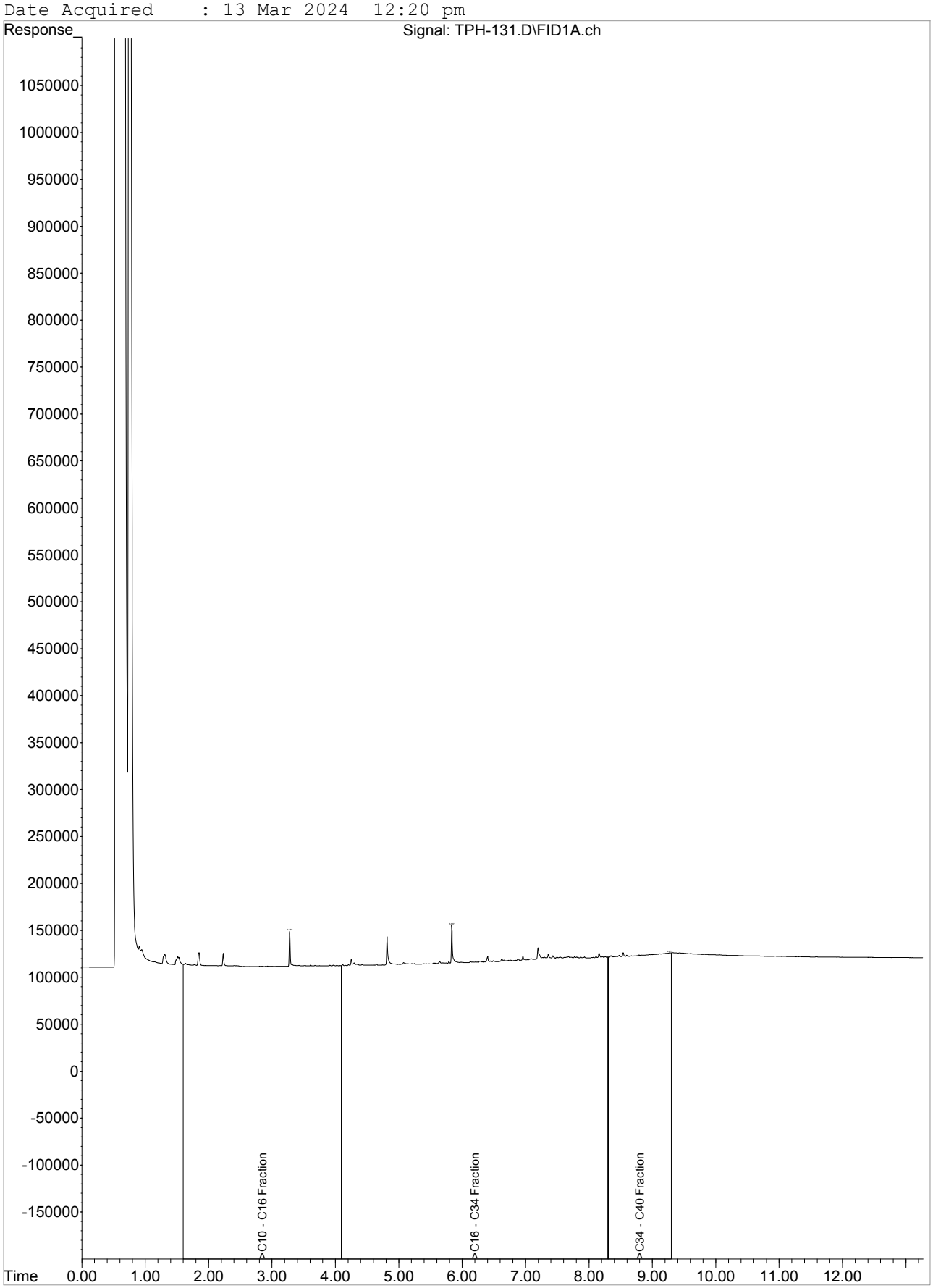
COC Page 1 of 1

ES2407462

Fraction Scheme : Legacy
Data File : TPH-131.D
Laboratory Number: ES2407462-001
Sample ID : A-BH17_0.5-0.6
Date Acquired : 13 Mar 2024 12:20 pm



Fraction Scheme : NEPM
Data File : TPH-131.D
Laboratory Number: ES2407462-001
Sample ID : A-BH17_0.5-0.6
Date Acquired : 13 Mar 2024 12:20 pm



CERTIFICATE OF ANALYSIS

Work Order	: **ES2408075**	Page	: 1 of 19
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MS KATE McGRATH	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60709736/CDRL1100	Date Samples Received	: 12-Mar-2024 15:45
Order number	: 60709736	Date Analysis Commenced	: 13-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024 12:48
Sampler	: Eric Serttas		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 15		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (08/04/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Eric Serttas on 06/04/2024, for samples 010. All analysis results are as per the previous report.
- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 005. All analysis results are as per the previous report.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 007, 009. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.

- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
				Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	15.3	----	17.2	18.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	No	----	----
Asbestos (Trace)	1332-21-4	-	-		No	----	No	----	----
Asbestos Type	1332-21-4	-	--		-	----	-	----	----
Synthetic Mineral Fibre	----	-	--		No	----	No	----	----
Organic Fibre	----	-	--		No	----	No	----	----
Sample weight (dry)	----	0.01	g		352	----	255	----	----
APPROVED IDENTIFIER:	----	-	--		J. PAGE	----	J. PAGE	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	8	----	6	<5
Cadmium	7440-43-9	1	mg/kg		----	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg		----	11	----	9	9
Copper	7440-50-8	5	mg/kg		----	10	----	24	<5
Lead	7439-92-1	5	mg/kg		----	<5	----	98	11
Nickel	7440-02-0	2	mg/kg		----	2	----	5	<2
Zinc	7440-66-6	5	mg/kg		----	18	----	88	15
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	----	<0.1	<0.1
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	<0.5	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	<0.5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	<0.5	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	<0.5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	<0.5	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
			Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
				Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	<0.5	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	<0.5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	<5	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	<5	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	<5	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	<5	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	----	<0.5	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	----	<5	<5
Chloromethane	74-87-3	5	mg/kg	----	<5	----	<5	<5
Vinyl chloride	75-01-4	5	mg/kg	----	<5	----	<5	<5
Bromomethane	74-83-9	5	mg/kg	----	<5	----	<5	<5
Chloroethane	75-00-3	5	mg/kg	----	<5	----	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg	----	<5	----	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
			Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
				Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
					Result	Result	Result	Result	Result
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	**1.4**	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	**3.3**	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	**2.9**	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	**1.1**	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
				Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	**1.2**	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	**1.7**	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	**0.6**	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	**1.4**	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	**0.9**	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	**1.2**	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	<0.5	----	**15.7**	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	<0.5	----	**1.8**	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	**0.6**	----	**2.1**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	**1.2**	----	**2.4**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	<50	----	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	----	<50	<50
EP080: BTEXN									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH41_0.6-0.7	BH41_0.8-1.0	BH42_0.2-0.4	BH42_0.5-0.6	BH42_3.0-3.1
				Sampling date / time	12-Mar-2024 00:00	12-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00	11-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2408075-002	ES2408075-003	ES2408075-005	ES2408075-006	ES2408075-010
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	<1
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	**89.1**	----	**77.7**	**89.1**
Toluene-D8	2037-26-5	0.5	%		----	**92.3**	----	**80.4**	**92.5**
4-Bromofluorobenzene	460-00-4	0.5	%		----	**93.4**	----	**84.3**	**95.2**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**72.2**	----	**76.6**	**75.1**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**79.4**	----	**82.3**	**79.1**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**53.7**	----	**67.4**	**53.2**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**87.8**	----	**87.7**	**84.5**
Anthracene-d10	1719-06-8	0.5	%		----	**65.5**	----	**79.7**	**72.8**
4-Terphenyl-d14	1718-51-0	0.5	%		----	**94.6**	----	**90.5**	**92.9**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**85.2**	----	**74.1**	**85.1**
Toluene-D8	2037-26-5	0.2	%		----	**91.5**	----	**79.6**	**91.6**
4-Bromofluorobenzene	460-00-4	0.2	%		----	**100**	----	**90.4**	**102**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
			Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	**16.1**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	----	**8**	----	----
Copper	7440-50-8	5	mg/kg	----	----	**14**	----	----
Lead	7439-92-1	5	mg/kg	----	----	<5	----	----
Nickel	7440-02-0	2	mg/kg	----	----	**6**	----	----
Zinc	7440-66-6	5	mg/kg	----	----	**32**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	0.5	mg/kg	----	----	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	----	----	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	----	----	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	----	----	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	----	----	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	----	----	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	----	----	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	----	----	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	----	----	<0.5	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	----	----	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	----	----	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	----	----	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	----	----	<5	----	----
EP074C: Sulfonated Compounds								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
					Result	Result	Result	Result	----
EP074C: Sulfonated Compounds - Continued									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	<0.5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	<5	----	----
Chloromethane	74-87-3	5	mg/kg		----	----	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		----	----	<5	----	----
Bromomethane	74-83-9	5	mg/kg		----	----	<5	----	----
Chloroethane	75-00-3	5	mg/kg		----	----	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	----	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	----	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	----	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	----	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	<50	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	----	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	**4.6**	<0.5	**5.5**	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	**7.0**	<0.5	**8.3**	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	**7.4**	<0.5	**8.8**	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	**3.0**	<0.5	**3.6**	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	**22.0**	<0.2	**26.2**	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	**10.4**	<0.5	**12.4**	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	**79.0**	----	----
Toluene-D8	2037-26-5	0.5	%		----	----	**80.1**	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	**86.4**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**79.0**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**83.0**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**55.7**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**87.7**	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	**73.4**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP BLANK	TRIP SPIKE 7	BH41_2.1-2.2	TRIP CONTROL SPIKE 7	----
			Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	12-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2408075-012	ES2408075-013	ES2408075-014	ES2408075-015	--------
				Result	Result	Result	Result	----
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	0.5	%	**----**	**----**	**96.8**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**89.3**	**80.5**	**75.4**	**84.7**	**----**
Toluene-D8	2037-26-5	0.2	%	**81.4**	**86.5**	**79.5**	**92.0**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**76.4**	**91.3**	**92.1**	**103**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240311	----	----	----	----
				Sampling date / time	11-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2408075-011	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240311	----	----	----	----
				Sampling date / time	11-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2408075-011	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**26.6**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240311	----	----	----	----
				Sampling date / time	11-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2408075-011	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**59.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**84.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**83.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**94.9**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**98.4**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**82.1**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**76.7**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**78.5**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH41_0.6-0.7 - 12-Mar-2024 00:00	Soil sample.
EA200: Description	BH42_0.2-0.4 - 11-Mar-2024 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2408075**	Page	: 1 of 15
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MS KATE McGRATH	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Project	: 60709736/CDRL1100	Date Samples Received	: 12-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 13-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024
Sampler	: Eric Serttas		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 15		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5664678)									
ES2408075-003	BH41_0.8-1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	9	26.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	6	28.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	8	19.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	16	9.0	No Limit
ES2408460-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	15	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5664683)									
ES2407457-003	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	6.7	8.2	19.8	No Limit
ES2408075-014	BH41_2.1-2.2	EA055: Moisture Content	----	0.1 (1.0)*	%	16.1	17.3	6.8	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5664677)									
ES2408378-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2407529-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5661122) - continued									
ES2408075-003	BH41_0.8-1.0	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5661122)									
ES2408075-003	BH41_0.8-1.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5661339)									
ES2408075-003	BH41_0.8-1.0	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5661339) - continued									
ES2408075-003	BH41_0.8-1.0	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5661339)									
ES2408075-003	BH41_0.8-1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5661121)									
ES2408075-003	BH41_0.8-1.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5661340)									
ES2408075-003	BH41_0.8-1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5661121)									
ES2408075-003	BH41_0.8-1.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5661340)									
ES2408075-003	BH41_0.8-1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5661340) - continued									
ES2408075-003	BH41_0.8-1.0	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5661121)									
ES2408075-003	BH41_0.8-1.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5665857)									
EN2402084-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0006	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.057	0.056	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.602	0.599	0.5	0% - 20%
ES2406045-012	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.003	50.5	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5665888)									
ES2407977-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2408081-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5660041)									
ES2408122-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2408122-010	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5660041)									
ES2408122-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2408122-010	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5660041)									
ES2408122-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5660041) - continued									
ES2408122-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2408122-010	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5664678)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.4	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	99.6	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	111	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	103	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	94.8	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	96.9	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	87.9	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5664677)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	87.9	70.0	125
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5661122)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	95.3	67.0	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	95.1	65.0	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	94.0	66.0	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	94.6	68.0	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	93.1	69.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	93.8	69.0	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	69.0	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	66.0	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	93.9	59.0	125
EP074B: Oxygenated Compounds (QCLot: 5661122)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	89.7	29.6	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	96.1	58.0	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	104	62.0	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	85.6	54.0	136
EP074C: Sulfonated Compounds (QCLot: 5661122)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	101	54.0	126
EP074D: Fumigants (QCLot: 5661122)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	95.9	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	100.0	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	96.5	51.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 5661122) - continued								
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	99.8	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5661122)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	111	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	111	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	104	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	118	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	111	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	107	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	97.9	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	90.8	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	94.6	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.8	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.7	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	97.3	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	94.8	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	99.8	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	97.0	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	101	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	99.8	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	97.5	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	97.4	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	103	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	99.2	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	102	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	99.8	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	95.8	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	95.4	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	98.0	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5661122)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.6	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.8	70.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 5661122) - continued								
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	95.8	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	94.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	96.6	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	96.9	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	97.8	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	98.1	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	96.0	52.0	122
EP074G: Trihalomethanes (QCLot: 5661122)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	99.4	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	97.2	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	95.3	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	99.6	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5661339)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	95.6	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	95.7	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	91.8	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.5	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	72.8	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	87.6	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	84.1	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	91.5	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	88.8	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	81.6	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	82.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	26.0	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5661339)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	103	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	104	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	92.3	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	91.6	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	92.6	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	91.2	74.0	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5661339) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	95.8	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	88.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.2	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	88.5	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	96.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.5	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	88.6	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5661121)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.7	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5661340)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	97.1	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	97.7	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	92.7	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5661121)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.6	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5661340)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.4	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	94.5	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	91.8	63.0	131
EP080: BTEXN (QCLot: 5661121)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	110	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	108	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	107	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	100	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5665857)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.7	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.2	84.0	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5665857) - continued								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.4	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.2	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.5	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.1	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5665888)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.0	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5659833)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.1	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	75.7	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	81.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	88.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	86.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	94.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	89.3	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	93.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	80.2	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	83.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	91.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	79.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.0	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	85.9	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	78.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	77.7	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5659834)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	62.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	87.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	84.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5660041)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5659834)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	72.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	87.3	57.8	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5659834) - continued								
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	88.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5660041)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75.0	127
EP080: BTEXN (QCLot: 5660041)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	95.1	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	85.6	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	84.5	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	90.2	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.0	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	94.6	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5664678)							
ES2408075-003	BH41_0.8-1.0	EG005T: Arsenic	7440-38-2	50 mg/kg	89.8	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	90.4	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.1	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.0	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5664677)							
ES2407529-004	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.6	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5661122)							
ES2408075-003	BH41_0.8-1.0	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	87.5	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.8	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5661122)							
ES2408075-003	BH41_0.8-1.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.0	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5661339)							
ES2408075-003	BH41_0.8-1.0	EP075(SIM): Phenol	108-95-2	10 mg/kg	92.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5661339) - continued							
ES2408075-003	BH41_0.8-1.0	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.0	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	89.0	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.7	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	27.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5661339)							
ES2408075-003	BH41_0.8-1.0	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	102	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5661121)							
ES2408075-003	BH41_0.8-1.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	70.3	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5661340)							
ES2408075-003	BH41_0.8-1.0	EP071: C10 - C14 Fraction	----	480 mg/kg	112	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	112	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	121	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5661121)							
ES2408075-003	BH41_0.8-1.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	71.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5661340)							
ES2408075-003	BH41_0.8-1.0	EP071: >C10 - C16 Fraction	----	860 mg/kg	107	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	112	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	131	52.0	132
EP080: BTEXN (QCLot: 5661121)							
ES2408075-003	BH41_0.8-1.0	EP080: Benzene	71-43-2	2.5 mg/kg	87.6	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	83.9	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.8	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	89.9	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	76.7	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5665857)							
EN2402084-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	89.1	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	92.2	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	96.7	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	91.5	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5665857) - continued							
EN2402084-002	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	89.8	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5665888)							
ES2407671-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	70.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5660041)							
ES2408122-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	80.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5660041)							
ES2408122-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	72.1	70.0	130
EP080: BTEXN (QCLot: 5660041)							
ES2408122-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	89.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	90.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.8	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	94.7	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	97.1	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2408075**	Page	: 1 of 9
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MS KATE McGRATH	Telephone	: +61 2 8784 8555
Project	: 60709736/CDRL1100	Date Samples Received	: 12-Mar-2024
Site	: ----	Issue Date	: 03-Sep-2024
Sampler	: Eric Serttas	No. of samples received	: 15
Order number	: 60709736	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES2408075-003	BH41_0.8-1.0	**Anthracene-d10**	1719-06-8	65.5 %	66.0-128 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH42_0.5-0.6,	BH42_3.0-3.1	**11-Mar-2024**	**----**	----	----	**15-Mar-2024**	25-Mar-2024	✓
Soil Glass Jar - Unpreserved (EA055)								
BH41_0.8-1.0,	BH41_2.1-2.2	**12-Mar-2024**	**----**	----	----	**15-Mar-2024**	26-Mar-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH42_0.2-0.4		**11-Mar-2024**	**----**	----	----	**15-Mar-2024**	07-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH41_0.6-0.7		**12-Mar-2024**	**----**	----	----	**15-Mar-2024**	08-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH42_0.5-0.6,	BH42_3.0-3.1	**11-Mar-2024**	**15-Mar-2024**	07-Sep-2024	✓	**15-Mar-2024**	07-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
BH41_0.8-1.0,	BH41_2.1-2.2	**12-Mar-2024**	**15-Mar-2024**	08-Sep-2024	✓	**15-Mar-2024**	08-Sep-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**15-Mar-2024**	08-Apr-2024	✓	**18-Mar-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**15-Mar-2024**	09-Apr-2024	✓	**18-Mar-2024**	09-Apr-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**14-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**14-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**14-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**14-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	19-Mar-2024	✓	**14-Mar-2024**	19-Mar-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**17-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH42_0.5-0.6	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**18-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH41_0.8-1.0	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**17-Mar-2024**	23-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**17-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH42_0.5-0.6	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**18-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**17-Mar-2024**	23-Apr-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**04-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**15-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**14-Mar-2024**	25-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**15-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**14-Mar-2024**	26-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**15-Mar-2024**	23-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**04-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**15-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**14-Mar-2024**	25-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**15-Mar-2024**	23-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**14-Mar-2024**	26-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**15-Mar-2024**	23-Apr-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE - 7, TRIP CONTROL SPIKE - 7	**04-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**14-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**04-Mar-2024**	**14-Mar-2024**	18-Mar-2024	✓	**15-Mar-2024**	18-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH42_0.5-0.6, BH42_3.0-3.1	**11-Mar-2024**	**14-Mar-2024**	25-Mar-2024	✓	**14-Mar-2024**	25-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH41_0.8-1.0, BH41_2.1-2.2	**12-Mar-2024**	**14-Mar-2024**	26-Mar-2024	✓	**14-Mar-2024**	26-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240311	**11-Mar-2024**	**15-Mar-2024**	07-Sep-2024	✓	**15-Mar-2024**	07-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240311	**11-Mar-2024**	**----**	----	----	**18-Mar-2024**	08-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	18-Mar-2024	✓	**16-Mar-2024**	22-Apr-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	18-Mar-2024	✓	**15-Mar-2024**	22-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	25-Mar-2024	✓	**13-Mar-2024**	25-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	18-Mar-2024	✓	**15-Mar-2024**	22-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	25-Mar-2024	✓	**13-Mar-2024**	25-Mar-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240311	**11-Mar-2024**	**13-Mar-2024**	25-Mar-2024	✓	**13-Mar-2024**	25-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP) - Continued							
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2408075**		
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MS KATE McGRATH	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: kate.mcgrath@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: +61 02 8934 0000	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 8934 0001	Facsimile	: +61-2-8784 8500
Project	: 60709736/CDRL1100	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 12-Mar-2024 15:45	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 19-Mar-2024	Scheduled Reporting Date	: **19-Mar-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.1, 1.4, 4.4'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 15 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **MIS-SOL: Coal Tar analysis will be conducted by Envirolab.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2408075-015 : [04-Mar-2024] : TRIP CONTROL SPIKE - 7

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP074 (solids) minus BTEXN Volatile Organic Compounds (minus BTEXN)	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2408075-001	12-Mar-2024 00:00	BH41_0.4-0.5						✓	
ES2408075-002	12-Mar-2024 00:00	BH41_0.6-0.7			✓				
ES2408075-003	12-Mar-2024 00:00	BH41_0.8-1.0		✓		✓			✓
ES2408075-004	12-Mar-2024 00:00	BH41_1.2-1.3	✓						
ES2408075-005	11-Mar-2024 00:00	BH42_0.2-0.4			✓				
ES2408075-006	11-Mar-2024 00:00	BH42_0.5-0.6		✓			✓		✓
ES2408075-007	11-Mar-2024 00:00	BH42_0.9-1.0	✓						
ES2408075-008	11-Mar-2024 00:00	BH42_1.2-1.4	✓						
ES2408075-009	11-Mar-2024 00:00	BH42_2.2-2.3	✓						
ES2408075-010	11-Mar-2024 00:00	BH42_3.0-3.1		✓			✓		✓
ES2408075-014	12-Mar-2024 00:00	BH41_2.1-2.2		✓		✓			

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2408075-012	04-Mar-2024 00:00	TRIP BLANK		✓	
ES2408075-013	04-Mar-2024 00:00	TRIP SPIKE 7	✓		
ES2408075-014	12-Mar-2024 00:00	BH41_2.1-2.2			✓
ES2408075-015	04-Mar-2024 00:00	TRIP CONTROL SPIKE 7	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2408075-011	11-Mar-2024 00:00	QC300_20240311	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- A4 - AU Tax Invoice (INV)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 346507

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2408075**
Number of Samples	1 Soil
Date samples received	14/03/2024
Date completed instructions received	14/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	21/03/2024
Date of Issue	20/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		346507-1
Your Reference	UNITS	BH41
Depth		0.4-0.5
Type of sample		Soil
Date prepared	-	19/03/2024
Date analysed	-	19/03/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 346507-A

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2408075**
Number of Samples	Additional analysis
Date samples received	14/03/2024
Date completed instructions received	30/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	07/05/2024
Date of Issue	02/05/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

PAHs in Soil		
Our Reference		346507-A-1
Your Reference	UNITS	BH41
Depth		0.4-0.5
Type of sample		Soil
Date extracted	-	01/05/2024
Date analysed	-	02/05/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	115

Moisture		
Our Reference		346507-A-1
Your Reference	UNITS	BH41
Depth		0.4-0.5
Type of sample		Soil
Date prepared	-	01/05/2024
Date analysed	-	02/05/2024
Moisture	%	6.4

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			01/05/2024	[NT]	[NT]	[NT]	[NT]	01/05/2024	[NT]
Date analysed	-			02/05/2024	[NT]	[NT]	[NT]	[NT]	02/05/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	118	[NT]	[NT]	[NT]	[NT]	112	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Anna Bui

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Monday, 29 April 2024 4:28 PM
To: Customer Service; Jacinta Hurst; Anna Bui; Nancy Zhang
Cc: McGrath, Kate
Subject: Additional analysis request (AECOM Ref: 60709736-CDRL 400)

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Envirolab,

We need additional analysis for the samples collected from the Wyong project (AECOM Ref: 60709736-CDRL 400/CDRL 1100). Can you please proceed with PAHs analysis for the samples below;

ALS Ref	Envirolab Ref	Sample ID
ES2410959	348276	BH26_0.03-0.06
ES2410959	348276	BH27_0.04-0.08
ES2409869	347631	R-BH10(B)-0.22
ES2408075	346507	BH41_0.4-0.5 (1)
ES2409727	347486	R_CO01(A)_0.0
ES2410959	348276	R_CO06_0.4-0.5
-	340893	R-CO01_0.0-0.7
ES2410587	348062	ACM-TP15_0.0-0.01
ES2407462	346059	A-BH17_0.0-0.05
ES2343854	340861	R-TP05-0-0.04
ES2343854	340861	ACM-TP09_0.00-0.035
ES2410959	348276	R-CO05_0.22-0.27
ES2410959	348276	BH02_0.6-0.7

ELN REF: 346507-A
TAT: STANDARD
DUE: 7/5/24
AB.

Please proceed with the PO 60709736-CDRL 1100.

Thank you,

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

Click here to connect with me on LinkedIn

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Q410, QVB Post Office, Sydney 2000
T 8934 0000
aecom.com

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— CONTAM —

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: ERIC SERTTAS	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): JAMES JENTZ	SITE:	MOBILE: 0449 718 911 PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60703736	P.O. NO.: → CDRL 1100	EMAIL REPORT TO: ERIC & KATA MCGRATH	
RESULTS REQUIRED (Date): STANDARD TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note – suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE 3.1, 1.4, 4.4
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	COAL TAR	ASBESTOS	(ARSENIC / PESTICIDE)	TRH/BTEXN	PAH / 8 METALS	PHENOLS	VOCs	CLAY CHCs	C6–C9	BTEXN			HOLD
1	BH41_0.4-0.5	M	12/3/24	AM	J	1	X												ASPHALT
2	-0.6-0.7	S	↓	↓	J, ZB	1,1		X											
3	-0.8-1.0									X	X	X	X						
4	-1.2-1.3																		
5	BH42_0.2		11/3/24	PM				X											
6	-0.5-0.6									X	X	X		X					
7	-0.8-1.0																		
8	-1.2-1.4																		
9	-2.2-2.4																		
10	-3.0-3.1	↓	↓	↓	↓	↓				X	X	X		X					
11	QC300_20240311	W	11/3/24	PM	V, A6, P	2,1,1				X	X								
12	TRIP BLANK	S	Lab Prepared		J	1									X				
13	TRIP SPIKE	↓		↓	↓	↓										X			
14	BH41_2.1-2.2	S	12/3/24	AM	J, ZB	1,1				X	X		X						

Subcontract Overland Lab / Split WO:
Lab / Analysis: Newcastle – Asbestos
Organised By / Date: Envirolab – Coal tar
Relinquished By / Date:
Courier:
WO No:
Attached By PO / Internal Sheet:
SOIL JAR SAMPLE

Environmental Division Sydney
Work Order Reference
ES2408075

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		
Name: ERIC SERTTAS	Date: 12/3/24	Name: [illegible]	Date: 12/3/24	Name: [illegible]	Date: 12/3/24	Con' Note No:
Of: ES	Time: AM	Of: ALS	Time: 3:45pm	Of: ALS	Time: 1849	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2408158**		
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james.looney@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WYONG TOWN CENTRE		
Sampler	:		

Dates

Date Samples Received	: 08-Mar-2024 16:40	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 19-Mar-2024	Scheduled Reporting Date	: **19-Mar-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.9'C, 2.6'C, 1.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 14 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- **pH fox analysis will be conducted by ALS Brisbane.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA037 ASS Field Screening Analysis	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)
ES2408158-001	05-Mar-2024 00:00	R-BH06_4.3-4.33	✓			
ES2408158-002	05-Mar-2024 00:00	R-BH06_3.3-3.55	✓			
ES2408158-003	05-Mar-2024 00:00	R-BH06_2.25-2.55	✓			
ES2408158-004	06-Mar-2024 00:00	R-BH01_2.5-2.59	✓			
ES2408158-005	06-Mar-2024 00:00	R-BH01_4.0-4.025	✓			
ES2408158-006	07-Mar-2024 00:00	R-BH01A_0.9-1.25	✓			
ES2408158-007	06-Mar-2024 00:00	R-BH09_2.1-2.3	✓			
ES2408158-008	08-Mar-2024 00:00	R-BH06A_0.8-1.25	✓			
ES2408158-009	08-Mar-2024 00:00	R-BH06A_1.25-1.7	✓			
ES2408158-010	08-Mar-2024 00:00	BH04A_0.4-0.5		✓	✓	✓
ES2408158-011	08-Mar-2024 00:00	BH04A_1.4-1.5		✓	✓	✓
ES2408158-012	08-Mar-2024 00:00	BH04A-0.1-0.25		✓	✓	✓
ES2408158-013	08-Mar-2024 00:00	BH04A_2.4-2.5		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2408158-014	08-Mar-2024 00:00	QC300_240308	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

JAMES LOONEY

- *AU Certificate of Analysis - NATA (COA)	Email	james.looney@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james.looney@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james.looney@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	james.looney@aecom.com
- A4 - AU Tax Invoice (INV)	Email	james.looney@aecom.com
- Chain of Custody (CoC) (COC)	Email	james.looney@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	james.looney@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA037: Ass Field Screening Analysis

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408158-AA**	Page	: 1 of 6
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 08-Mar-2024 16:40
Order number	: 60709736	Date Analysis Commenced	: 14-Mar-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024 23:17
Sampler	: ----		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 001-013. All analysis results are as per the previous report.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-013. All analysis results are as per the previous report.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A-0.1-0.25	BH04A_2.4-2.5	----
			Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2408158-010	ES2408158-011	ES2408158-012	ES2408158-013	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	7.5	17.4	8.8	16.6	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	----
Asbestos (Trace)	1332-21-4	-	-	No	No	No	No	----
Asbestos Type	1332-21-4	-	--	-	-	-	-	----
Synthetic Mineral Fibre	----	-	--	No	No	No	No	----
Organic Fibre	----	-	--	No	No	No	No	----
Sample weight (dry)	----	0.01	g	459	335	231	349	----
APPROVED IDENTIFIER:	----	-	--	J. PAGE	J. PAGE	J. PAGE	J. PAGE	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A-0.1-0.25	BH04A_2.4-2.5	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408158-010	ES2408158-011	ES2408158-012	ES2408158-013	--------
					Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A-0.1-0.25	BH04A_2.4-2.5	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2408158-010	ES2408158-011	ES2408158-012	ES2408158-013	--------
					Result	Result	Result	Result	----
EP231P: PFAS Sums - Continued									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**92.2**	**90.4**	**93.3**	**93.1**	**----**
13C8-PFOA	----	0.0002	%		**94.7**	**105**	**93.2**	**101**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH04A_0.4-0.5 - 08-Mar-2024 00:00	Soil sample.
EA200: Description	BH04A_1.4-1.5 - 08-Mar-2024 00:00	Soil sample.
EA200: Description	BH04A-0.1-0.25 - 08-Mar-2024 00:00	Soil sample.
EA200: Description	BH04A_2.4-2.5 - 08-Mar-2024 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408158-AB**	Page	: 1 of 4
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 08-Mar-2024 16:40
Order number	: 60709736	Date Analysis Commenced	: 18-Mar-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024 23:18
Sampler	: ----		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 9		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 001-013. All analysis results are as per the previous report.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-013. All analysis results are as per the previous report.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH06_4.3-4.33	R-BH06_3.3-3.55	R-BH06_2.25-2.55	R-BH01_2.5-2.59	R-BH01_4.0-4.025
			Sampling date / time	05-Mar-2024 00:00	05-Mar-2024 00:00	05-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2408158-001	ES2408158-002	ES2408158-003	ES2408158-004	ES2408158-005
				Result	Result	Result	Result	Result
EA037: Ass Field Screening Analysis								
ø pH (F)	----	0.1	pH Unit	**6.5**	**6.5**	**8.1**	**7.7**	**7.0**
ø pH (Fox)	----	0.1	pH Unit	**1.6**	**1.6**	**1.4**	**5.2**	**5.4**
ø Reaction Rate	----	1	-	**2**	**2**	**2**	**2**	**2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH01A_0.9-1.25	R-BH09_2.1-2.3	R-BH06A_0.8-1.25	R-BH06A_1.25-1.7	----
			Sampling date / time	07-Mar-2024 00:00	06-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2408158-006	ES2408158-007	ES2408158-008	ES2408158-009	--------
				Result	Result	Result	Result	----
EA037: Ass Field Screening Analysis								
ø pH (F)	----	0.1	pH Unit	**7.9**	**7.0**	**6.7**	**7.8**	**----**
ø pH (Fox)	----	0.1	pH Unit	**1.5**	**4.5**	**1.8**	**1.9**	**----**
ø Reaction Rate	----	1	-	**2**	**2**	**2**	**2**	**----**

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA037: Ass Field Screening Analysis

QUALITY CONTROL REPORT

Work Order	: **ES2408158-AA**	Page	: 1 of 7
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 08-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 14-Mar-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024
Sampler	: ----		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5668767)									
EB2407899-007	Anonymous	EA055: Moisture Content	----	0.1	%	30.1	30.2	0.4	0% - 20%
ES2408121-015	Anonymous	EA055: Moisture Content	----	0.1	%	3.9	3.5	10.3	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5667917)									
ES2408058-012	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0009	0.0008	14.8	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2408158-013	BH04A_2.4-2.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5667917)									
ES2408058-012	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5667917) - continued									
ES2408058-012	Anonymous	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005 (0.0006)*	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2408158-013	BH04A_2.4-2.5	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5667917)									
ES2408058-012	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.0003	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005 (0.0006)*	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005 (0.0006)*	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005 (0.0006)*	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005 (0.0006)*	mg/kg	<0.0006	<0.0006	0.0	No Limit
ES2408158-013	BH04A_2.4-2.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5667917) - continued									
ES2408158-013	BH04A_2.4-2.5	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5667917)									
ES2408058-012	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2408158-013	BH04A_2.4-2.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5667917)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.7	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	84.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.7	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5667917)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	89.0	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.9	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.7	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.5	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.7	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.9	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5667917)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	87.6	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.6	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.2	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.1	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5667917)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5667917) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	88.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	97.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	102	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	77.6	69.2	143

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5667917)							
ES2408058-012	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	80.2	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	81.4	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	83.4	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	77.9	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	82.1	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	83.3	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5667917)							
ES2408058-012	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	94.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	86.5	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	92.1	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.8	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	85.9	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	81.1	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	86.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	101	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	114	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	97.0	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5667917)							
ES2408058-012	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	98.5	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	97.1	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	107	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	114	68.7	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5667917) - continued							
ES2408058-012	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	98.1	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	110	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	104	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5667917)							
ES2408058-012	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	83.8	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	93.8	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	109	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	84.0	69.2	143

QUALITY CONTROL REPORT

Work Order	: **ES2408158-AB**	Page	: 1 of 3
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 08-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 18-Mar-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024
Sampler	: ----		
Site	: WYONG TOWN CENTRE		
Quote number	: EN/004/23		
No. of samples received	: 9		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA037: Ass Field Screening Analysis (QC Lot: 5666068)									
EB2408074-001	Anonymous	EA037: pH (F)	----	0.1	pH Unit	4.9	5.2	5.9	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	2.2	2.0	12.4	0% - 20%
ES2408158-008	R-BH06A_0.8-1.25	EA037: pH (F)	----	0.1	pH Unit	6.7	6.9	2.5	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	1.8	2.0	7.4	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2408158**	Page	: 1 of 5
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 08-Mar-2024
Site	: WYONG TOWN CENTRE	Issue Date	: 18-Sep-2024
Sampler	: ----	No. of samples received	: 14
Order number	: 60709736	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Moisture Content	EA055	2	21	9.52	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA037: Ass Field Screening Analysis								
Snap Lock Bag - frozen (EA037)								
R-BH06_4.3-4.33,	R-BH06_3.3-3.55,	**05-Mar-2024**	**18-Mar-2024**	01-Sep-2024	✓	**18-Mar-2024**	01-Sep-2024	✓
R-BH06_2.25-2.55								
Snap Lock Bag - frozen (EA037)								
R-BH01_2.5-2.59,	R-BH01_4.0-4.025,	**06-Mar-2024**	**18-Mar-2024**	02-Sep-2024	✓	**18-Mar-2024**	02-Sep-2024	✓
R-BH09_2.1-2.3								
Snap Lock Bag - frozen (EA037)								
R-BH01A_0.9-1.25		**07-Mar-2024**	**18-Mar-2024**	03-Sep-2024	✓	**18-Mar-2024**	03-Sep-2024	✓
Snap Lock Bag - frozen (EA037)								
R-BH06A_0.8-1.25,	R-BH06A_1.25-1.7	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**18-Mar-2024**	04-Sep-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH04A_0.4-0.5,	BH04A_1.4-1.5,	**08-Mar-2024**	**----**	----	----	**18-Mar-2024**	22-Mar-2024	✓
BH04A-0.1-0.25,	BH04A_2.4-2.5							
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH04A_0.4-0.5,	BH04A_1.4-1.5,	**08-Mar-2024**	**----**	----	----	**14-Mar-2024**	04-Sep-2024	✓
BH04A-0.1-0.25,	BH04A_2.4-2.5							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH04A_0.4-0.5,	BH04A_1.4-1.5,	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**19-Mar-2024**	27-Apr-2024	✓
BH04A-0.1-0.25,	BH04A_2.4-2.5							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
BH04A_0.4-0.5, BH04A_1.4-1.5, BH04A-0.1-0.25, BH04A_2.4-2.5	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**19-Mar-2024**	27-Apr-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
BH04A_0.4-0.5, BH04A_1.4-1.5, BH04A-0.1-0.25, BH04A_2.4-2.5	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**19-Mar-2024**	27-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
BH04A_0.4-0.5, BH04A_1.4-1.5, BH04A-0.1-0.25, BH04A_2.4-2.5	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**19-Mar-2024**	27-Apr-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
BH04A_0.4-0.5, BH04A_1.4-1.5, BH04A-0.1-0.25, BH04A_2.4-2.5	**08-Mar-2024**	**18-Mar-2024**	04-Sep-2024	✓	**19-Mar-2024**	27-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
ASS Field Screening Analysis	EA037	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	21	**9.52**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Drying only	EN020D	SOIL	In house
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

James.Looney@aecom.com
Fahim.Rashid@aecom.com

AECOM

QM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: WONG TOLN CENTRE	MOBILE: PHONE:	ALS.
PROJECT NUMBER & TASK CODE: 60699736	P.O. NO.:	EMAIL REPORT TO:	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample; e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH for Sulfides (ASS)	PFAS	Asbestos									HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	ASS-R-BH5-4.3-4.33m	S	05/03/24				X												(FROZEN upon collection)
2	ASS-R-BH5-3.3-3.55m	S	05/03/24				X												(FROZEN upon collection)
3	ASS-R-BH5-2.25-2.7m	S	05/03/24				X												FROZEN upon collection
4	ASS-R-BH01-2.5-2.59	S	06/05/24				X												
5	ASS-R-BH01-4.0-4.02	S	06/05/24				X												
6	ASS-R-BH01A-0.9-1.35	S	07/03/24				X												
7	ASS-R-BH09-2.1-2.3	S	6/3/24				X												
8	ASS-R-BH06A-0.8-1.25	S	08/03/24				X												
9	ASS-R-BH06A-1.25-1.7m	S	08/03/24				X												
10	BH04A-0.4-0.5m	S	03/03/24					X											
11	240308-BH4A-1.4-1.5m	S	08/03/24																
12	240308-BH04A-0.1-0.25m	S	08/03/24																
13	240308-BH4A-2.4-2.5m	S	08/03/24																
10	240308-BH04A-0.4-0.5m	S	08/03/24																
13	240308-BH04A-2.4-2.5m	S	08/03/24					X											
11	240308-BH4A-1.4-1.5m	S	08/03/24					X											
12	240308-BH04A-0.1-0.25m	S	08/03/24					X											
13	240308-BH04A-2.4-2.5m	S	08/03/24						X										
11	240308-BH4A-1.4-1.5m	S	08/03/24						X										

Environmental Division
Sydney
Work Order Reference
ES2408158

Telephone : +61-2-8784 8555

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Alex To	Date:	Name:	Date:	Name: Lucas	Date: 8/3/24	Con' Note No:
Of: AECOM	Time:	Of:	Time:	Of: ALS	Time: 1640	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

James.Lowrey@aecom.com
Fahim.

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jeffs	SITE: LIYONG TOWN CENTRE	MOBILE: PHONE:	ALS
PROJECT NUMBER & TASK CODE: 60709736	P.O. NO.:	EMAIL REPORT TO:	
RESULTS REQUIRED (Date):	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Asbestos											HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles												
12	240308-BH4A-0.1-0.5m	S	08/03/24				X											
10	240308-BH4A-0.4-0.5m	S	08/03/24				X											
14	QC300_240508	W	08/05/24			4												

Subcon / Forward Lab / Split WO
Lab / Analysis: Newcastle Asbestos 10-13
Organised By / Date: Brisbane PH Fox 1-9
Relinquished By / Date:
Connote / Courier:
WO No: ES2408158
Attach By PO / Internal Sheet:

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: NCAS	Date: 8/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: ALS	Time: 1640	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page of

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408767**	Page	: 1 of 5
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 15-Mar-2024 18:49
Order number	: 60709736	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024 13:00
Sampler	: ALEX TO		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 15		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-009 All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH08A_0.0-0.1	R-BH10A_0.1-0.2	A-BH02_3.1-3.3	A-BH02_2.0-2.2	Trip Blank
			Sampling date / time	13-Mar-2024 00:00	14-Mar-2024 00:00	14-Mar-2024 00:00	14-Mar-2024 00:00	04-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2408767-006	ES2408767-007	ES2408767-008	ES2408767-009	ES2408767-013
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**No**	**No**	**No**	**----**
Asbestos (Trace)	1332-21-4	-	-	**No**	**No**	**No**	**No**	**----**
Asbestos Type	1332-21-4	-	--	**-**	**-**	**-**	**-**	**----**
Synthetic Mineral Fibre	----	-	--	**No**	**No**	**No**	**No**	**----**
Organic Fibre	----	-	--	**No**	**No**	**No**	**No**	**----**
Sample weight (dry)	----	0.01	g	**423**	**498**	**375**	**705**	**----**
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	**B.SCHRADER**	**B.SCHRADER**	**B.SCHRADER**	**----**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	**----**	**----**	**----**	**----**	<10
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	**----**	**----**	**----**	**----**	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	**----**	**----**	**----**	**----**	<10
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	**----**	**----**	**----**	**----**	<0.2
Toluene	108-88-3	0.5	mg/kg	**----**	**----**	**----**	**----**	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	**----**	**----**	**----**	**----**	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**----**	**----**	**----**	**----**	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	**----**	**----**	**----**	**----**	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg	**----**	**----**	**----**	**----**	<0.2
^ **Total Xylenes**	----	0.5	mg/kg	**----**	**----**	**----**	**----**	<0.5
Naphthalene	91-20-3	1	mg/kg	**----**	**----**	**----**	**----**	<1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**----**	**----**	**----**	**----**	**80.0**
Toluene-D8	2037-26-5	0.2	%	**----**	**----**	**----**	**----**	**89.9**
4-Bromofluorobenzene	460-00-4	0.2	%	**----**	**----**	**----**	**----**	**89.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Spike - 5	Trip Control Spike - 5	----	----	----
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2408767-014	ES2408767-015	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		**3.7**	**4.3**	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		**6.5**	**7.2**	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**7.1**	**7.8**	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		**2.8**	**3.1**	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		**20.1**	**22.4**	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		**9.9**	**10.9**	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**77.6**	**78.1**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**91.8**	**94.7**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**90.2**	**92.1**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R-BH08A_0.0-0.1 - 13-Mar-2024 00:00	A soil sample.
EA200: Description	R-BH10A_0.1-0.2 - 14-Mar-2024 00:00	A soil sample.
EA200: Description	A-BH02_3.1-3.3 - 14-Mar-2024 00:00	A soil sample.
EA200: Description	A-BH02_2.0-2.2 - 14-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2408767**	Page	: 1 of 3
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 15-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024
Sampler	: ALEX TO		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 15		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5671550)									
EW2401295-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5671550)									
EW2401295-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5671550)									
EW2401295-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5671550)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	87.8	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5671550)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.1	72.4	133
EP080: BTEXN (QCLot: 5671550)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.6	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	85.2	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	82.0	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5671550)							
EW2401295-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.1	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5671550)							
EW2401295-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.1	61.1	142
EP080: BTEXN (QCLot: 5671550)							
EW2401295-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.0	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	83.0	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.2	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.6	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.7	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2408767**	Page	: 1 of 4
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 15-Mar-2024
Site	: ----	Issue Date	: 03-Sep-2024
Sampler	: ALEX TO	No. of samples received	: 15
Order number	: 60709736	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
Trip Blank	19-Mar-2024	18-Mar-2024	1	20-Mar-2024	18-Mar-2024	2
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
Trip Blank	19-Mar-2024	18-Mar-2024	1	20-Mar-2024	18-Mar-2024	2
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
Trip Blank, Trip Spike - 5, Trip Control Spike - 5	19-Mar-2024	18-Mar-2024	1	20-Mar-2024	18-Mar-2024	2

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
R-BH08A_0.0-0.1	**13-Mar-2024**	**----**	----	----	**19-Mar-2024**	09-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
R-BH10A_0.1-0.2, A-BH02_3.1-3.3, A-BH02_2.0-2.2	**14-Mar-2024**	**----**	----	----	**19-Mar-2024**	10-Sep-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Trip Blank	**04-Mar-2024**	**19-Mar-2024**	18-Mar-2024	×	**20-Mar-2024**	18-Mar-2024	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Trip Blank	**04-Mar-2024**	**19-Mar-2024**	18-Mar-2024	×	**20-Mar-2024**	18-Mar-2024	×
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Trip Blank, Trip Spike - 5, Trip Control Spike - 5	**04-Mar-2024**	**19-Mar-2024**	18-Mar-2024	×	**20-Mar-2024**	18-Mar-2024	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2408767**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james.looney@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: ALEX TO		

Dates

Date Samples Received	: 15-Mar-2024 18:49	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 25-Mar-2024	Scheduled Reporting Date	: **25-Mar-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.0'C, 4.6'C, 4.6'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 15 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2408767-010 : [14-Mar-2024] : QC300_20240314-15(pm-Am)
ES2408767-015 : [04-Mar-2024] : Trip Control Spike - 5

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2408767-001	13-Mar-2024 00:00	R-BH08A_0.0-0.1	✓			
ES2408767-002	14-Mar-2024 00:00	A-BH02_2.0-2.2	✓			
ES2408767-003	13-Mar-2024 00:00	R-BH10A_0.1-0.2	✓			
ES2408767-004	13-Mar-2024 00:00	ACM-BH10_0.0-0.12	✓			
ES2408767-005	14-Mar-2024 00:00	A-BH02_3.1-3.3	✓			
ES2408767-006	13-Mar-2024 00:00	R-BH08A_0.0-0.1		✓		
ES2408767-007	14-Mar-2024 00:00	R-BH10A_0.1-0.2		✓		
ES2408767-008	14-Mar-2024 00:00	A-BH02_3.1-3.3		✓		
ES2408767-009	14-Mar-2024 00:00	A-BH02_2.0-2.2		✓		
ES2408767-013	04-Mar-2024 00:00	Trip Blank				✓
ES2408767-014	04-Mar-2024 00:00	Trip Spike - 5			✓	
ES2408767-015	04-Mar-2024 00:00	Trip Control Spike -...			✓	

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2408767-010	14-Mar-2024 00:00	QC300_20240314-15(pm...	✓
ES2408767-011	10-Mar-2024 00:00	QC300_20240310	✓
ES2408767-012	13-Mar-2024 00:00	QC300_20240313-14	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- A4 - AU Tax Invoice (INV)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

JAMES LOONEY

- *AU Certificate of Analysis - NATA (COA)	Email	james.looney@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james.looney@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james.looney@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	james.looney@aecom.com
- A4 - AU Tax Invoice (INV)	Email	james.looney@aecom.com
- Chain of Custody (CoC) (COC)	Email	james.looney@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	james.looney@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8192 5130 E: adelaide@alsglobal.com

BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Gladstone QLD 4680 Ph: 07 49 78 7944 E: ALSEnviro.Gladstone@alsglobal.com

MACKAY Unit 2/50 Caterpillar Drive Paget QLD 4740 Ph: 07 4963 5795 E: ALSEnviro.Mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

NOWRA 4/15 Geary Place North Nowra NSW 2541 Ph: 07 4423 2063 E: nowra@alsglobal.com

PERTH 26 Rigali Way Wangara WA 6065 Ph: 08 9406 1301 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 13 Carlton Street Kirwan QLD 4817 Ph: 07 4775 0000 E: ALSEnviro.Townsville@alsglobal.com

WOLLONGONG 1/18-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: Alex To	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Level 21, 420 George Street, Sydney NSW 2000		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: Wyong Town Centre Pacific Highway Upgrade **PROJECT NO** 60709736	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: **PURCHASE ORDER NO.:**	**COUNTRY OF ORIGIN:**	COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: James Jentz	**CONTACT PH:**	OF: (1) 2 3 4 5 6 7	Other comment:
SAMPLER: Alex To	**SAMPLER MOBILE:** 0450 638 364	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	Alex To	
Email Reports to (will default to PM if no other addresses are listed): james.looney@aecom.com / fahim.rashid@aecom.com		DATE/TIME:	DATE/TIME: 15/3/24 1849
Email Invoice to (will default to PM if no other addresses are listed): james.looney@aecom.com/ fahim.rashid@aecom.com		**RELINQUISHED BY:** DATE/TIME:	**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Cont & m	Asbestos							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	240313_R-BH08-0-0.3	13/03/2024	S	Jar	1	X								
2	240314_A-BH02-2-2.2m	14/03/2024	S	Jar	1	X								
3	240313_R-BH10-0-0.2m	13/03/2024	S	Jar	1	X								
4	240313_ACM-BH10_0-0.2m	13/03/2024	S	Jar	1	X								
5	240314_A-BH02_3.1-3.3m	14/03/2024	S	Jar	1	X								
6	240313_R-BH08-0-0.3m	13/03/2024	S	Bag	1		X							
7	240314_R-BH10-0-0.2m	14/03/24	S	Bag	1		X							
8	240314_A-BH02_3.1-3.3	14/03/24	S	Bag	1		X							
9	240314_A-BH02_2.0-2.2	14/03/24	S	Bag	1		X							
10	QC300_240314-15(pm-Ash)		W	Bottle	4	X								
11	QC300_240310		W	Bottle	4	X								
12	QC300_240313-14	13/3/24 - 14/3/24	W	Bottle	4	X								
				TOTAL										

Environmental Division Sydney
Work Order Reference
ES2408767

Telephone : +61-2-8784 8555

Analysis: NEWCASTLE - Asbestos
Organised By / Date: 6-9
Relinquished By / Date:
Invoice / Container:
ES2408767
Received By / Date: Sheet

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

13	Trip Blank	4.3.24	S
14	Trip Spike-S	4.3.24	S
15	Trip Control Spike S	4.3.24	S

ES2408767

CERTIFICATE OF ANALYSIS

Work Order	: **ES2409354**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 21-Mar-2024 15:46
Order number	: 60709736	Date Analysis Commenced	: 21-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024 13:16
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of sample 240308_BH04A_0.4-0.5m have been confirmed by re-extraction and re-analysis.
- EP074: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (03/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-003. All analysis results are as per the previous report.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
			Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
				Result	Result	Result	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	4.7	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.2	16.1	----	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	23	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.61	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	0.2	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	0.4	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.1	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.1	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	1.1	----	----
Exchangeable Sodium Percent	----	0.1	%	----	----	15.6	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	17	18	----	----	----
Copper	7440-50-8	5	mg/kg	<5	13	----	----	----
Lead	7439-92-1	5	mg/kg	<5	13	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	3	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	14	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
					Result	Result	Result	----	----
EP074D: Fumigants - Continued									
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
					Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
					Result	Result	Result	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		**8.0**	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		**3.1**	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		**4.0**	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		**10.3**	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**61.6**	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		**14.3**	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**56.2**	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**48.9**	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**14.4**	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**12.4**	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**17.4**	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**6.2**	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**16.2**	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**9.4**	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**1.5**	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**12.7**	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**297**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**22.7**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**22.7**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**22.7**	**1.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**560**	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		**250**	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**810**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**710**	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		**130**	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**840**	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		**6**	<1	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**83.6**	**81.8**	----	----	----
Toluene-D8	2037-26-5	0.5	%		**88.1**	**80.8**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**97.0**	**81.4**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH04A_0.4-0.5	BH04A_1.4-1.5	BH04A_2.4-2.5	----	----
				Sampling date / time	08-Mar-2024 00:00	08-Mar-2024 00:00	08-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409354-001	ES2409354-002	ES2409354-003	--------	--------
					Result	Result	Result	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**71.5**	**75.8**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**74.7**	**78.0**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**58.7**	**61.9**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**74.6**	**79.4**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**77.2**	**82.1**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**84.9**	**91.0**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**75.4**	**73.8**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**82.7**	**75.9**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**97.8**	**83.0**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_240308	----	----	----	----
				Sampling date / time	08-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409354-004	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_240308	----	----	----	----
				Sampling date / time	08-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409354-004	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**18.7**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_240308	----	----	----	----
				Sampling date / time	08-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409354-004	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**47.5**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**45.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**70.0**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**65.2**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**75.0**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**104**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**104**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**106**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

QUALITY CONTROL REPORT

Work Order	: **ES2409354**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 21-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 21-Mar-2024
C-O-C number	: ----	Issue Date	: 03-Sep-2024
Sampler	: ----		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5680011)									
ES2409354-001	BH04A_0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	19	11.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	6	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 5679775)									
ES2409354-003	BH04A_2.4-2.5	EA002: pH Value	----	0.1	pH Unit	4.7	5.0	6.4	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5679149)									
ES2409328-008	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	12.4	13.2	5.8	0% - 50%
ED007: Exchangeable Cations (QC Lot: 5684442)									
ES2409066-001	Anonymous	ED007: Exchangeable Sodium Percent	----	0.1	%	4.5	4.5	0.0	0% - 20%
		ED007: Exchangeable Calcium	----	0.1	meq/100g	1.7	1.7	0.0	0% - 50%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.8	0.8	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.1	0.1	0.0	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	2.9	2.8	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5680012)									
ES2409354-001	BH04A_0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5678573)									
ES2409354-001	BH04A_0.4-0.5	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5678573)									
ES2409354-001	BH04A_0.4-0.5	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5678573)									
ES2409354-001	BH04A_0.4-0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5678573) - continued									
ES2409354-001	BH04A_0.4-0.5	EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5678573)									
ES2409354-001	BH04A_0.4-0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5678565)									
ES2409323-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2409328-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5678565)									
ES2409323-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2409328-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5678565) - continued									
ES2409328-002	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5678566)									
ES2409323-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409328-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5678572)									
ES2409354-001	BH04A_0.4-0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5678566)									
ES2409323-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409328-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5678572)									
ES2409354-001	BH04A_0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5678572)									
ES2409354-001	BH04A_0.4-0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	6	6	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5678932)									
ES2409338-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001 (0.0010)*	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001 (0.010)*	mg/L	<0.010	<0.010	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5678932) - continued									
ES2409338-001	Anonymous	EG020A-T: Chromium	7440-47-3	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005 (0.052) *	mg/L	<0.052	<0.052	0.0	No Limit
ES2409370-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.011	26.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5678567)									
ES2409354-004	QC300_240308	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5678726)									
ES2409338-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5678726)									
ES2409338-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5678726)									
ES2409338-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5680011)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	101	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	95.2	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	119	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	104	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	101	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	95.2	66.0	133
EA002: pH 1:5 (Soils) (QCLot: 5679775)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.5	98.8	101
				----	7 pH Unit	100	98.8	101
ED007: Exchangeable Cations (QCLot: 5684442)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	108	75.8	120
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	105	74.9	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	108	80.0	120
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	101	80.0	120
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5680012)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	103	70.0	125
EP074D: Fumigants (QCLot: 5678573)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	98.1	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.7	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	92.6	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	94.0	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	101	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5678573)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	81.7	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	93.0	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	91.2	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	98.0	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5678573) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	97.5	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	95.7	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	96.6	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	91.2	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	98.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	100	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	97.2	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	94.3	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	101	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	102	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	99.4	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	87.9	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	94.2	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	108	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	103	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	95.1	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	97.0	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	98.3	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5678573)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	100	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	97.4	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	98.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	100	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	98.7	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	99.0	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	96.8	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	103	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5678573)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	98.9	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	94.5	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	96.1	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	96.1	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5678565)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	86.7	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	89.1	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	85.2	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	87.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	61.4	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	85.6	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	77.9	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	84.4	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	82.3	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	72.8	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	73.2	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	22.1	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5678565)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.6	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	87.2	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	88.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	91.5	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	92.0	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	94.2	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	91.3	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.9	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.6	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	95.2	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	106	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	85.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	80.9	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5678565) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	68.1	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678566)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	110	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	110	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	117	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678572)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678566)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	111	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	110	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	101	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678572)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	72.4	133
EP080: BTEXN (QCLot: 5678572)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	111	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	106	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	108	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	110	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	108	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.4	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5678932)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.4	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.7	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.1	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.9	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.3	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5678567)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.4	77.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5678558)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	71.4	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	82.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	88.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	77.6	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	79.7	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	73.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	74.7	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	66.4	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	81.9	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	67.5	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	77.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	72.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	75.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	76.4	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	84.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678559)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	64.9	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	92.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678726)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	82.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678559)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	65.6	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	80.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	87.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678726)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	80.5	75.0	127
EP080: BTEXN (QCLot: 5678726)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	105	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	103	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	92.0	73.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5678726) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	115	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	107	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5680011)							
ES2409354-001	BH04A_0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	92.9	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.4	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.0	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.9	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	92.1	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5680012)							
ES2409354-001	BH04A_0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	110	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5678573)							
ES2409354-001	BH04A_0.4-0.5	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	83.4	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	88.7	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5678573)							
ES2409354-001	BH04A_0.4-0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	90.2	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5678565)							
ES2409323-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	87.2	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.7	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	85.4	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	36.1	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5678565)							
ES2409323-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	86.8	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678566)							
ES2409323-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	101	73.0	137

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678566) - continued							
ES2409323-001	Anonymous	EP071: C15 - C28 Fraction	----	3100 mg/kg	111	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	128	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678572)							
ES2409354-001	BH04A_0.4-0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	126	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678566)							
ES2409323-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	107	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	120	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	99.0	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678572)							
ES2409354-001	BH04A_0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	124	61.1	142
EP080: BTEXN (QCLot: 5678572)							
ES2409354-001	BH04A_0.4-0.5	EP080: Benzene	71-43-2	2.5 mg/kg	# 124	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	118	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	# 124	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	# 126	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	# 122	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	# 145	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5678932)							
ES2409338-002	Anonymous	EG020A-T: Arsenic	7440-38-2	10 mg/L	99.4	70.0	130
		EG020A-T: Cadmium	7440-43-9	2.5 mg/L	90.9	70.0	130
		EG020A-T: Chromium	7440-47-3	10 mg/L	91.2	70.0	130
		EG020A-T: Copper	7440-50-8	10 mg/L	95.8	70.0	130
		EG020A-T: Lead	7439-92-1	10 mg/L	91.6	70.0	130
		EG020A-T: Nickel	7440-02-0	10 mg/L	93.2	70.0	130
		EG020A-T: Zinc	7440-66-6	10 mg/L	93.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5678567)							
ES2409354-004	QC300_240308	EG035T: Mercury	7439-97-6	0.01 mg/L	73.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5678726)							
ES2409338-002	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	83.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5678726)							
ES2409338-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	76.0	70.0	130
EP080: BTEXN (QCLot: 5678726)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5678726) - continued							
ES2409338-002	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	89.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	116	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	90.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409354**	Page	: 1 of 9
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Telephone	: +61 2 8784 8555
Project	: 60709736	Date Samples Received	: 21-Mar-2024
Site	: ----	Issue Date	: 03-Sep-2024
Sampler	: ----	No. of samples received	: 4
Order number	: 60709736	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080: BTEXN	ES2409354--001	BH04A_0.4-0.5	**Benzene**	71-43-2	124 %	62.1-122%	**Recovery greater than upper data quality objective**
EP080: BTEXN	ES2409354--001	BH04A_0.4-0.5	**Ethylbenzene**	100-41-4	124 %	67.4-123%	**Recovery greater than upper data quality objective**
EP080: BTEXN	ES2409354--001	BH04A_0.4-0.5	**meta- & para-Xylene**	108-38-3 106-42-3	126 %	66.4-121%	**Recovery greater than upper data quality objective**
EP080: BTEXN	ES2409354--001	BH04A_0.4-0.5	**ortho-Xylene**	95-47-6	122 %	70.7-121%	**Recovery greater than upper data quality objective**
EP080: BTEXN	ES2409354--001	BH04A_0.4-0.5	**Naphthalene**	91-20-3	145 %	61.1-115%	**Recovery greater than upper data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
BH04A_2.4-2.5		22-Mar-2024	15-Mar-2024	**7**	----	----	----
EP074D: Fumigants							
Soil Glass Jar - Unpreserved							
BH04A_0.4-0.5,	BH04A_1.4-1.5	21-Mar-2024	15-Mar-2024	**6**	22-Mar-2024	15-Mar-2024	**7**
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved							
BH04A_0.4-0.5,	BH04A_1.4-1.5	21-Mar-2024	15-Mar-2024	**6**	22-Mar-2024	15-Mar-2024	**7**
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved							
BH04A_0.4-0.5,	BH04A_1.4-1.5	21-Mar-2024	15-Mar-2024	**6**	22-Mar-2024	15-Mar-2024	**7**
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved							
BH04A_0.4-0.5,	BH04A_1.4-1.5	21-Mar-2024	15-Mar-2024	**6**	22-Mar-2024	15-Mar-2024	**7**

Matrix: **WATER**

Method / **Container** / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_240308	21-Mar-2024	15-Mar-2024	**6**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Amber Glass Bottle - Unpreserved						
QC300_240308	21-Mar-2024	15-Mar-2024	**6**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_240308	21-Mar-2024	15-Mar-2024	**6**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
BH04A_2.4-2.5	**08-Mar-2024**	**22-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	22-Mar-2024	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**----**	----	**----**	**21-Mar-2024**	22-Mar-2024	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H)							
BH04A_2.4-2.5	**08-Mar-2024**	**----**	----	**----**	**25-Mar-2024**	04-Sep-2024	✓
EA152: Soil Particle Density							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA152)							
BH04A_2.4-2.5	**08-Mar-2024**	**----**	----	**----**	**25-Mar-2024**	04-Sep-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
BH04A_2.4-2.5	**08-Mar-2024**	**25-Mar-2024**	05-Apr-2024	✓	**25-Mar-2024**	05-Apr-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**22-Mar-2024**	04-Sep-2024	✓	**22-Mar-2024**	04-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**22-Mar-2024**	05-Apr-2024	✓	**22-Mar-2024**	05-Apr-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	15-Mar-2024	×
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	15-Mar-2024	×
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	15-Mar-2024	×
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	15-Mar-2024	×
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**22-Mar-2024**	30-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**22-Mar-2024**	30-Apr-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**22-Mar-2024**	22-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**22-Mar-2024**	22-Mar-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH04A_0.4-0.5, BH04A_1.4-1.5	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**22-Mar-2024**	22-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	04-Sep-2024	✓	**21-Mar-2024**	04-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_240308	**08-Mar-2024**	**----**	----	----	**22-Mar-2024**	05-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	30-Apr-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	30-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**21-Mar-2024**	22-Mar-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	15-Mar-2024	×	**22-Mar-2024**	30-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**21-Mar-2024**	22-Mar-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_240308	**08-Mar-2024**	**21-Mar-2024**	22-Mar-2024	✓	**21-Mar-2024**	22-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409354**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES LOONEY	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james.looney@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 21-Mar-2024 15:46	Issue Date	: 03-Sep-2024
Client Requested Due Date	: 25-Mar-2024	Scheduled Reporting Date	: **25-Mar-2024**

Delivery Details

Mode of Delivery	: Samples On Hand	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1'C
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please note that the scheduled reporting date has not been confirmed with laboratory management. If the scheduled reporting date is not achievable ALS will be in contact with you.
- **The final report will be completed by the scheduled reporting date listed in this SRN. A Preliminary report will be available on 22/03/2024 with the exception of clay content analysis**
- **Clay content analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - EA150H-C Clay Content by Hydrometer	SOIL - ED007 Def CEC / Exchangeable Cations (ED007) - Default	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2409354-001	08-Mar-2024 00:00	BH04A_0.4-0.5		✓			✓	✓
ES2409354-002	08-Mar-2024 00:00	BH04A_1.4-1.5		✓			✓	✓
ES2409354-003	08-Mar-2024 00:00	BH04A_2.4-2.5	✓		✓	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2409354-004	08-Mar-2024 00:00	QC300_240308	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA002: pH (1:5)							
BH04A_2.4-2.5	Soil Glass Jar - Unpreserved	15-Mar-2024	22-Mar-2024	21-Mar-2024	✘	----	----
EP074: Volatile Organic Compounds							
BH04A_0.4-0.5	Soil Glass Jar - Unpreserved	15-Mar-2024	15-Mar-2024	21-Mar-2024	✘	----	----
BH04A_1.4-1.5	Soil Glass Jar - Unpreserved	15-Mar-2024	15-Mar-2024	21-Mar-2024	✘	----	----

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EP071: TRH - Semivolatile Fraction							
QC300_240308	Amber Glass Bottle - Unpreserve	15-Mar-2024	30-Apr-2024	21-Mar-2024	✘	----	----

EP075(SIM): PAH/Phenols (GC/MS - SIM)							
QC300_240308	Amber Glass Bottle - Unpreserve	15-Mar-2024	30-Apr-2024	21-Mar-2024	✘	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- Attachment - Report (SUBCO)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

JAMES LOONEY

- *AU Certificate of Analysis - NATA (COA)	Email	james.looney@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james.looney@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james.looney@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	james.looney@aecom.com
- A4 - AU Tax Invoice (INV)	Email	james.looney@aecom.com
- Attachment - Report (SUBCO)	Email	james.looney@aecom.com
- Chain of Custody (CoC) (COC)	Email	james.looney@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	james.looney@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

Thanh Le
21/3/24 1546

Thanh Le

From: Fadi Soro on behalf of Samples Sydney
Sent: Thursday, 21 March 2024 3:46 PM
To: ALSEnviro Sydney; rebatches.sydney; Thanh Le
Cc: Jack Clifton
Subject: RE: Rebatch ES2408158 1 day TAT

Environmental Division
Sydney
Work Order Reference
ES2409354

Telephone : +61-2-8784 8555

Hi Thanh,

Can I leave this re-batch with you?

Regards

Fadi

Subcon / Forward Lab / Split WO
Lab / Analysis: Newcastle - Clay content
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

TAT

From: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Sent: Thursday, March 21, 2024 3:41 PM
To: rebatches.sydney <rebatches.sydney@ALSGlobal.com>; Wisam Marassa <Wisam.Marassa@alsglobal.com>; Edwandy Fadjar <Edwandy.Fadjar@alsglobal.com>; Sanjeshni Jyoti <sanjeshni.jyoti@alsglobal.com>; Barbara Hanna <Barbara.Hanna@alsglobal.com>
Cc: Jack Clifton <jack.clifton@ALSGlobal.com>
Subject: Rebatch ES2408158 1 day TAT
Importance: High

Hi @rebatches.sydney,

Could you please organise this rebatch? 1 day TAT requested.

Sydney samples are in trays: newcastle, brisbane, S-195, SV-053, M-131c, V-102a

Hi @Wisam @Barbara, could you please confirm turnaround?

ALS Environmental will be closed for the nominated public holiday on the 29th of March, 1st April and 25th April.

Please contact your local client service team if you have special requirements during this period and consider the above dates when submitting samples.

Kind regards,

right solutions. right partner.

Sep Mahamad
Client Services Coordinator, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8504
Sepan.Mahamad@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Thursday, March 21, 2024 1:17 AM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>; Loren Schiavon <loren.schiavon@alsglobal.com>; Sepan Mahamad <Sepan.Mahamad@alsglobal.com>

Cc: Looney, James <James.Looney@aecom.com>; Rashid, Fahim <Fahim.Rashid@aecom.com>
Subject: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2408158 | Your Reference: 60709736

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please conduct the following additional analysis on 1 day TAT;

1. • ES2408158-010, 240308_BH04A-0.1-0.2:
    - TRH, BTEXN, PAHs, Metals, Phenols, CHCs
2. • ES2408158-011, 240308_BHO4A_1.4-1.5m:
    - TRH, BTEXN, PAHs, Metals, Phenols, CHCs
3. • ES2408158-013, 240308_BH04A_2.4-2.5m:
    - pH, Cation Exchange Capacity and Clay % (Site Specific EILs and ESLs)
4. • QC300_240308 (water):
    - TRH, BTEXN, PAHs, Metals

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM
Level 21, 420 George Street,
Sydney, NSW 2000 Australia
aecom.com

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From: Looney, James <James.Looney@aecom.com>
Sent: Wednesday, March 20, 2024 3:27 PM
To: Rashid, Fahim <Fahim.Rashid@aecom.com>; Serttas, Eric <Eric.Serttas@aecom.com>
Subject: FW: RESULTS & EDD & INVOICE for ALS Workorder : ES2408158 | Your Reference: 60709736

James Looney BSc (Hons) MSc MIEI

Geotechnical Engineer, Ground Engineering and Tunneling, ANZ NAC
james.looney@aecom.com

Click here to connect with me on LinkedIn

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M +61 437 147 055
aecom.com

Delivering a better world
LinkedIn | Twitter | Facebook | Instagram

From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, March 19, 2024 3:01 PM
To: Looney, James <James.Looney@aecom.com>
Subject: RESULTS & EDD & INVOICE for ALS Workorder : ES2408158 | Your Reference: 60709736

Deliverables for ALS Workorder ES2408158

Project: 60709736

Dear JAMES LOONEY,

Please find enclosed the following deliverables for **ES2408158**:

- ES2408158_0_COA.pdf
- 60709736.ESDAT_ES2408158_0.Chemistry2e.CSV
- 60709736.ESDAT_ES2408158_0.Header.XML
- 60709736.ESDAT_ES2408158_0.Sample2e.CSV
- ES2408158_0_QC.pdf
- ES2408158_0_QCI.pdf
- 1151887315_INV.pdf
- ES2408158_COC.pdf

Report Recipients

- JAMES LOONEY
  - ES2408158_0_COA.pdf (Email)
  - 60709736.ESDAT_ES2408158_0.Chemistry2e.CSV
  - 60709736.ESDAT_ES2408158_0.Header.XML
  - 60709736.ESDAT_ES2408158_0.Sample2e.CSV
  - ES2408158_0_QC.pdf (Email)
  - ES2408158_0_QCI.pdf (Email)
  - 1151887315_INV.pdf (Email)
  - ES2408158_COC.pdf (Email)
- ACCOUNTS PAYABLE
  - 1151887315_INV.pdf (Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2408158_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email)
- FAHIM RASHID

- ES2408158_0_COA.pdf (Email, Email, Email, Email, Email, Email, Email, Email)
- 60709736.ESDAT_ES2408158_0.Chemistry2e.CSV
- 60709736.ESDAT_ES2408158_0.Header.XML
- 60709736.ESDAT_ES2408158_0.Sample2e.CSV
- ES2408158_0_QC.pdf (Email, Email, Email, Email, Email, Email, Email, Email)
- ES2408158_0_QCL.pdf (Email, Email, Email, Email, Email, Email, Email, Email)
- ES2408158_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email)

CERTIFICATE OF ANALYSIS

Work Order	: **ES2409702**	Page	: 1 of 27
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024 19:30
Order number	: 607094736-CDRL 1100	Date Analysis Commenced	: 26-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 15:16
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 28		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: The result for sample ES2409702-006 was confirmed by re-analysis.
- EP071: Results of sample BH39_0.6-0.7 have been confirmed by re-extraction and re-analysis.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- EP074: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 009, 011, 020-021. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend

- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		8.8	17.2	8.6	8.8	13.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	No	----
Asbestos (Trace)	1332-21-4	-	-		No	----	----	No	----
Asbestos Type	1332-21-4	-	--		-	----	----	-	----
Synthetic Mineral Fibre	----	-	--		No	----	----	No	----
Organic Fibre	----	-	--		No	----	----	No	----
Sample weight (dry)	----	0.01	g		274	----	----	144	----
APPROVED IDENTIFIER:	----	-	--		J.WILLIAMS	----	----	J.WILLIAMS	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	21	17	7	10
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		26	70	41	38	22
Copper	7440-50-8	5	mg/kg		<5	<5	<5	55	9
Lead	7439-92-1	5	mg/kg		8	16	11	11	11
Nickel	7440-02-0	2	mg/kg		2	<2	3	8	6
Zinc	7440-66-6	5	mg/kg		10	<5	8	27	30
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	**0.8**	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	**0.8**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	**120**	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**120**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	**36**	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	**36**	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	**90**	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	**120**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**210**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	**90**	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**93.8**	**89.0**	----	----	----
Toluene-D8	2037-26-5	0.5	%		**95.1**	**97.7**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**102**	**102**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**91.3**	**93.0**	**92.8**	**88.6**	**89.0**
2-Chlorophenol-D4	93951-73-6	0.5	%		**89.1**	**87.4**	**88.9**	**83.7**	**83.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.7**	**81.8**	**80.7**	**77.0**	**78.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**84.3**	**83.4**	**84.1**	**81.1**	**80.1**
Anthracene-d10	1719-06-8	0.5	%		**89.5**	**92.1**	**89.8**	**89.6**	**90.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH30_0.4-0.5	BH30_0.9-1.0	QC100_202240317	BH39_0.6-0.7	BH39_1.2-1.3
				Sampling date / time	17-Mar-2024 00:00	17-Mar-2024 00:00	17-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-001	ES2409702-002	ES2409702-004	ES2409702-006	ES2409702-007
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		91.5	90.4	90.0	86.2	87.1
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		98.0	93.1	105	106	102
Toluene-D8	2037-26-5	0.2	%		92.1	94.4	94.6	95.3	95.0
4-Bromofluorobenzene	460-00-4	0.2	%		106	108	93.9	101	99.4
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		98.4	116	107	----	----
13C8-PFOA	----	0.0002	%		116	112	112	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		14.3	----	----	18.7	14.6
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	No	No	No
Asbestos (Trace)	1332-21-4	-	-		----	No	No	No	No
Asbestos Type	1332-21-4	-	--		----	-	-	-	-
Synthetic Mineral Fibre	----	-	--		----	No	No	No	No
Organic Fibre	----	-	--		----	No	No	No	No
Sample weight (dry)	----	0.01	g		----	87.8	109	439	221
APPROVED IDENTIFIER:	----	-	--		----	J.WILLIAMS	J.WILLIAMS	J.WILLIAMS	J.WILLIAMS
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	----	----	26	10
Cadmium	7440-43-9	1	mg/kg		<1	----	----	<1	<1
Chromium	7440-47-3	2	mg/kg		19	----	----	15	17
Copper	7440-50-8	5	mg/kg		8	----	----	29	6
Lead	7439-92-1	5	mg/kg		11	----	----	60	11
Nickel	7440-02-0	2	mg/kg		5	----	----	5	4
Zinc	7440-66-6	5	mg/kg		26	----	----	116	26
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	----	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	----	----	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	----	----	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	----	----	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	----	----	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
			Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	----	----	----	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	----	----	----	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	----	----	----	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	----	----	----	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	----	<2	<2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		**0.8**	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	**0.9**	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	**2.0**	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	**1.9**	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	**0.7**	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	**0.8**	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	**1.1**	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	**0.9**	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	**0.6**	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	**0.8**	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**0.8**	----	----	**9.7**	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	**1.2**	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	**1.4**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	**1.7**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	----	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**87.8**	**122**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	**97.0**	**125**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	**83.4**	**53.6**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**89.8**	----	----	**91.0**	**84.4**
2-Chlorophenol-D4	93951-73-6	0.5	%		**85.0**	----	----	**83.9**	**69.2**
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.6**	----	----	**82.8**	**80.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_202240318	HA56_0.0-0.05 (Mulch)	HA57_0.0-0.05 (Mulch)	HA58_0.0-0.2	HA59_0.6-0.7
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-008	ES2409702-009	ES2409702-011	ES2409702-013	ES2409702-016
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**80.8**	**----**	**----**	**80.8**	**69.1**
Anthracene-d10	1719-06-8	0.5	%		**89.1**	**----**	**----**	**89.2**	**88.2**
4-Terphenyl-d14	1718-51-0	0.5	%		**85.4**	**----**	**----**	**86.2**	**84.7**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**99.8**	**----**	**----**	**100**	**108**
Toluene-D8	2037-26-5	0.2	%		**96.8**	**----**	**----**	**93.7**	**97.5**
4-Bromofluorobenzene	460-00-4	0.2	%		**99.2**	**----**	**----**	**93.8**	**99.1**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
			Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**11.9**	----	----	----	----
EA155: Foreign Material - Type I								
Metal	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Glass	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Asphalt	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Stone	----	0.05	%	----	**0.43**	**9.24**	**8.46**	**1.58**
Ceramic and Slag (other than blast furnace slag)	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Type I Foreign Materials (Total)	----	0.05	%	----	**0.43**	**9.24**	**8.46**	**1.58**
EA155: Foreign Material - Type II								
Plaster	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Clay lumps and other Friable Material	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Type II Foreign Materials (Total)	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Plastic	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Bitumen	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Paint	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Paper and Cardboard	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Cloth	----	0.05	%	----	<0.05	<0.05	<0.05	<0.05
Wood and other Vegetable Matter	----	0.05	%	----	**0.71**	**0.13**	**0.36**	**0.14**
Type III Foreign Materials (Total)	----	0.05	%	----	**0.71**	**0.13**	**0.36**	**0.14**
EA155: Foreign Material Content								
Percentage Passing 4.75mm Sieve	----	0.1	%	----	**98.9**	**90.6**	**91.2**	**98.3**
Total Foreign Material	----	0.1	%	----	**1.1**	**9.4**	**8.8**	**1.7**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils - Continued									
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		No	----	----	----	----
Sample weight (dry)	----	0.01	g		253	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		J.WILLIAMS	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		29	----	----	----	----
Copper	7440-50-8	5	mg/kg		9	----	----	----	----
Lead	7439-92-1	5	mg/kg		17	----	----	----	----
Nickel	7440-02-0	2	mg/kg		18	----	----	----	----
Zinc	7440-66-6	5	mg/kg		48	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**93.8**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**115**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**116**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**90.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**84.5**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**83.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**79.8**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**88.9**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.7-0.8	HA56_0.05-0.8	HA57_0.05-0.8	HA58_0.0-0.5	HA59_0.0-1.3
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409702-019	ES2409702-020	ES2409702-021	ES2409702-022	ES2409702-023
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		**86.1**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**110**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**99.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**97.2**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	HA60_0.0-1.0	TRIP BLANK	TRIP SPIKE	TSC	----
			Sampling date / time	18-Mar-2024 00:00	04-Mar-2024 00:00	04-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2409702-024	ES2409702-026	ES2409702-027	ES2409702-028	--------
				Result	Result	Result	Result	----
EA155: Foreign Material - Type I								
Metal	----	0.05	%	<0.05	----	----	----	----
Glass	----	0.05	%	<0.05	----	----	----	----
Asphalt	----	0.05	%	<0.05	----	----	----	----
Stone	----	0.05	%	**5.00**	----	----	----	----
Ceramic and Slag (other than blast furnace slag)	----	0.05	%	<0.05	----	----	----	----
Type I Foreign Materials (Total)	----	0.05	%	**5.00**	----	----	----	----
EA155: Foreign Material - Type II								
Plaster	----	0.05	%	<0.05	----	----	----	----
Clay lumps and other Friable Material	----	0.05	%	<0.05	----	----	----	----
Type II Foreign Materials (Total)	----	0.05	%	<0.05	----	----	----	----
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	<0.05	----	----	----	----
Plastic	----	0.05	%	<0.05	----	----	----	----
Bitumen	----	0.05	%	<0.05	----	----	----	----
Paint	----	0.05	%	<0.05	----	----	----	----
Paper and Cardboard	----	0.05	%	<0.05	----	----	----	----
Cloth	----	0.05	%	<0.05	----	----	----	----
Wood and other Vegetable Matter	----	0.05	%	**0.78**	----	----	----	----
Type III Foreign Materials (Total)	----	0.05	%	**0.78**	----	----	----	----
EA155: Foreign Material Content								
Percentage Passing 4.75mm Sieve	----	0.1	%	**94.2**	----	----	----	----
Total Foreign Material	----	0.1	%	**5.8**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA60_0.0-1.0	TRIP BLANK	TRIP SPIKE	TSC	----
				Sampling date / time	18-Mar-2024 00:00	04-Mar-2024 00:00	04-Mar-2024 00:00	04-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2409702-024	ES2409702-026	ES2409702-027	ES2409702-028	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	**3.0**	**3.8**	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	**5.4**	**6.6**	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	**6.1**	**7.2**	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	**2.4**	**2.9**	----
^ **Sum of BTEX**	----	0.2	mg/kg		----	<0.2	**16.9**	**20.5**	----
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	**8.5**	**10.1**	----
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	<1	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**115**	**105**	**102**	----
Toluene-D8	2037-26-5	0.2	%		----	**100**	**100**	**97.8**	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	**97.7**	**96.4**	**95.1**	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH30_0.4-0.5 - 17-Mar-2024 00:00	A soil sample.
EA200: Description	BH39_0.6-0.7 - 18-Mar-2024 00:00	A soil sample.
EA200: Description	HA56_0.0-0.05 (Mulch) - 18-Mar-2024 00:00	A mulch sample.
EA200: Description	HA57_0.0-0.05 (Mulch) - 18-Mar-2024 00:00	A mulch sample.
EA200: Description	HA58_0.0-0.2 - 18-Mar-2024 00:00	A soil sample.
EA200: Description	HA59_0.6-0.7 - 18-Mar-2024 00:00	A soil sample.
EA200: Description	HA60_0.7-0.8 - 18-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material Content

(SOIL) EA155: Foreign Material - Type I

(SOIL) EA155: Foreign Material - Type III

(SOIL) EA155: Foreign Material - Type II

QUALITY CONTROL REPORT

Work Order	: **ES2409702**	Page	: 1 of 20
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Order number	: 607094736-CDRL 1100	Date Analysis Commenced	: 26-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 28		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5691287)									
ES2409727-006	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	94	105	11.2	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	174	142	19.8	0% - 20%
ES2409702-001	BH30_0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	18	33.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	8	15.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	15.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	10	0.0	No Limit
ES2409727-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	11.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	10	22.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	38	27	32.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	357	345	3.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5691289)									
ES2409702-004	QC100_202240317	EA055: Moisture Content	----	0.1 (1.0)*	%	8.6	10.2	16.6	0% - 50%
ES2409727-013	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	18.7	18.5	1.1	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5691288)									
ES2409702-001	BH30_0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2409727-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055: Ammonia as N (QC Lot: 5697788)									
ES2409702-001	BH30_0.4-0.5	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5687095)									
ES2409702-013	HA58_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5687094)									
ES2409702-013	HA58_0.0-0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5687094)									
ES2409702-013	HA58_0.0-0.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5687094) - continued									
ES2409702-013	HA58_0.0-0.2	EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5687591)									
ES2409702-001	BH30_0.4-0.5	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5687591)									
ES2409702-001	BH30_0.4-0.5	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5687591) - continued									
ES2409702-001	BH30_0.4-0.5	EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5687591)									
ES2409702-001	BH30_0.4-0.5	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5687591)									
ES2409702-001	BH30_0.4-0.5	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5687092)									
ES2409727-006	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2409702-013	HA58_0.0-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5687092) - continued									
ES2409702-013	HA58_0.0-0.2	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5687092)									
ES2409727-006	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2409702-013	HA58_0.0-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.9	0.6	41.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.0	1.7	17.7	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.9	1.6	15.6	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5687092) - continued									
ES2409702-013	HA58_0.0-0.2	EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.6	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.1	1.1	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	0.8	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	9.7	8.4	14.4	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	1.0	10.2	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409702-008	QC100_202240318	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5687093)									
ES2409727-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409702-013	HA58_0.0-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5687590)									
EW2401401-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409702-001	BH30_0.4-0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409702-008	QC100_202240318	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687093)									
ES2409727-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409702-013	HA58_0.0-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687590)									
EW2401401-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687590) - continued									
ES2409702-001	BH30_0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409702-008	QC100_202240318	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5687590)									
EW2401401-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409702-001	BH30_0.4-0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5687826)									
ES2409114-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5687826) - continued									
ES2409226-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0164	0.0159	3.5	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0154	0.0156	1.1	0% - 20%
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002 (0.0005)*	mg/kg	0.110	0.104	5.4	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0093	0.0102	9.8	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002 (0.0005)*	mg/kg	0.0635	0.0603	5.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5687826)									
ES2409114-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2409226-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0058	0.0055	4.7	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0273	0.0273	0.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0042	0.0043	0.0	0% - 20%
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0082	0.0086	4.2	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	0.007	0.008	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5687826)									
ES2409114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5687826) - continued									
ES2409114-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2409226-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5687826)									
ES2409114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2409226-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5691287)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.9	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	101	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	118	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	98.5	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	94.7	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.8	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.4	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5691288)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	125	70.0	125
EK055: Ammonia as N (QCLot: 5697788)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	250 mg/kg	99.7	84.0	104
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5687095)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	97.9	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	69.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094) - continued								
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.7	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	83.1	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5687094)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	92.4	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.9	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	82.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	73.9	41.0	123
EP074D: Fumigants (QCLot: 5687591)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	84.4	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	87.9	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	81.9	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	78.1	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	83.2	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5687591)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	62.5	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	86.2	41.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5687591) - continued								
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	93.0	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	94.1	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	92.7	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	94.0	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	86.1	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	82.9	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	84.4	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	85.5	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	88.4	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.8	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	84.2	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	83.6	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	90.8	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	86.9	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	86.6	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	89.1	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	89.7	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	107	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	69.8	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	72.7	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	85.2	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	86.3	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	56.8	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	70.1	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	101	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5687591)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	87.8	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	83.1	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	88.5	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	87.8	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	89.7	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	90.4	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	88.3	70.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074F: Halogenated Aromatic Compounds (QCLot: 5687591) - continued								
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	92.1	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	96.6	52.0	122
EP074G: Trihalomethanes (QCLot: 5687591)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	80.6	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	82.6	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	79.1	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5687092)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.4	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	80.5	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.3	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	89.0	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	93.6	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	88.9	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.6	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	85.3	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	52.7	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5687092)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	88.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.7	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.0	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	94.5	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.2	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.5	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.1	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	104	74.0	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5687092) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	95.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.6	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5686775)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.5	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687093)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	96.9	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	96.5	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	85.9	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687590)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	89.0	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5686775)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687093)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.9	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	93.0	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	79.1	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687590)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.8	72.4	133
EP080: BTEXN (QCLot: 5686775)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.5	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.9	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.1	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.1	78.8	122
EP080: BTEXN (QCLot: 5687590)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.9	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.5	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.0	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	100	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	117	81.3	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 5687590) - continued								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	96.0	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5687826)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.1	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.4	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.0	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.9	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5687826)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	90.2	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.8	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.5	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.1	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.7	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.6	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.1	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	89.1	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5687826)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.7	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.0	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	85.0	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.5	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5687826)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	81.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	84.2	64.0	140

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5687826) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	107	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	109	69.2	143

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5691287)							
ES2409702-001	BH30_0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	124	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	99.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	100	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	102	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5691288)							
ES2409702-001	BH30_0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	126	70.0	130
EK055: Ammonia as N (QCLot: 5697788)							
ES2409702-001	BH30_0.4-0.5	EK055: Ammonia as N	7664-41-7	200 mg/kg	97.3	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5687095)							
ES2409702-013	HA58_0.0-0.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094)							
ES2409702-013	HA58_0.0-0.2	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	94.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	87.2	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	85.9	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	100	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	86.3	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	84.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5687094)							
ES2409702-013	HA58_0.0-0.2	EP068: Diazinon	333-41-5	0.5 mg/kg	86.3	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	91.8	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	89.9	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	81.8	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5687591)							
ES2409702-001	BH30_0.4-0.5	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	81.5	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	79.7	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5687591)							
ES2409702-001	BH30_0.4-0.5	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	82.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5687092)							
ES2409702-013	HA58_0.0-0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.5	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.8	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	81.6	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5687092)							
ES2409702-013	HA58_0.0-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.6	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	88.4	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687093)							
ES2409702-013	HA58_0.0-0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	128	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	124	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	127	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687590)							
ES2409702-001	BH30_0.4-0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	101	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.9	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687093)							
ES2409702-013	HA58_0.0-0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	120	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	126	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687590)							
ES2409702-001	BH30_0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	61.1	142
EP080: BTEXN (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.9	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	111	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	107	70.7	121

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP080: BTEXN (QCLot: 5686775) - continued							
ES2409690-001	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	107	61.1	115
EP080: BTEXN (QCLot: 5687590)							
ES2409702-001	BH30_0.4-0.5	EP080: Benzene	71-43-2	2.5 mg/kg	102	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	97.3	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	103	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	109	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	107	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	# 116	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5687826)							
ES2409114-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	89.6	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	93.8	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	91.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	119	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	98.1	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	96.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5687826)							
ES2409114-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	98.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	89.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	95.5	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	99.5	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	95.7	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	88.8	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	105	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	105	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	101	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	87.2	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	91.2	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5687826)							
ES2409114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	112	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	93.5	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	103	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	94.0	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	108	65.1	134

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5687826) - continued							
ES2409114-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	80.1	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	83.2	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5687826)							
ES2409114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	78.3	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	80.7	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	88.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	78.6	69.2	143

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409702**	Page	: 1 of 11
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS	No. of samples received	: 28
Order number	: 607094736-CDRL 1100	No. of samples analysed	: 19

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080: BTEXN	ES2409702--001	BH30_0.4-0.5	**Naphthalene**	91-20-3	116 %	61.1-115%	**Recovery greater than upper data quality objective**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES2409702-016	HA59_0.6-0.7	**2-Fluorobiphenyl**	321-60-8	69.1 %	70.0-122 %	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP074D: Fumigants						
Soil Glass Jar - Unpreserved						
BH30_0.4-0.5, BH30_0.9-1.0	26-Mar-2024	24-Mar-2024	**2**	28-Mar-2024	24-Mar-2024	**4**
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved						
BH30_0.4-0.5, BH30_0.9-1.0	26-Mar-2024	24-Mar-2024	**2**	28-Mar-2024	24-Mar-2024	**4**
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved						
BH30_0.4-0.5, BH30_0.9-1.0	26-Mar-2024	24-Mar-2024	**2**	28-Mar-2024	24-Mar-2024	**4**
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved						
BH30_0.4-0.5, BH30_0.9-1.0	26-Mar-2024	24-Mar-2024	**2**	28-Mar-2024	24-Mar-2024	**4**
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
TRIP BLANK	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
TRIP BLANK	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
TRIP BLANK, TRIP SPIKE, TSC	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**----**	----	----	**27-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EA055) BH39_0.6-0.7, BH39_1.2-1.3, QC100_202240318, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**----**	----	----	**27-Mar-2024**	01-Apr-2024	✓
EA155: Foreign Material - Type I							
Snap Lock Bag (EA155) HA56_0.05-0.8, HA57_0.05-0.8, HA58_0.0-0.5, HA59_0.0-1.3, HA60_0.0-1.0	**18-Mar-2024**	**----**	----	----	**02-Apr-2024**	14-Sep-2024	✓
EA155: Foreign Material - Type II							
Snap Lock Bag (EA155) HA56_0.05-0.8, HA57_0.05-0.8, HA58_0.0-0.5, HA59_0.0-1.3, HA60_0.0-1.0	**18-Mar-2024**	**----**	----	----	**02-Apr-2024**	14-Sep-2024	✓
EA155: Foreign Material - Type III							
Snap Lock Bag (EA155) HA56_0.05-0.8, HA57_0.05-0.8, HA58_0.0-0.5, HA59_0.0-1.3, HA60_0.0-1.0	**18-Mar-2024**	**----**	----	----	**02-Apr-2024**	14-Sep-2024	✓
EA155: Foreign Material Content							
Snap Lock Bag (EA155) HA56_0.05-0.8, HA57_0.05-0.8, HA58_0.0-0.5, HA59_0.0-1.3, HA60_0.0-1.0	**18-Mar-2024**	**----**	----	----	**02-Apr-2024**	14-Sep-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH30_0.4-0.5		**17-Mar-2024**	**----**	----	----	**27-Mar-2024**	13-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH39_0.6-0.7,	HA56_0.0-0.05 (Mulch),	**18-Mar-2024**	**----**	----	----	**27-Mar-2024**	14-Sep-2024	✓
HA57_0.0-0.05 (Mulch),	HA58_0.0-0.2,							
HA59_0.6-0.7,	HA60_0.7-0.8							
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH30_0.4-0.5,	BH30_0.9-1.0,	**17-Mar-2024**	**27-Mar-2024**	13-Sep-2024	✓	**27-Mar-2024**	13-Sep-2024	✓
QC100_202240317								
Soil Glass Jar - Unpreserved (EG005T)								
BH39_0.6-0.7,	BH39_1.2-1.3,	**18-Mar-2024**	**27-Mar-2024**	14-Sep-2024	✓	**27-Mar-2024**	14-Sep-2024	✓
QC100_202240318,	HA58_0.0-0.2,							
HA59_0.6-0.7,	HA60_0.7-0.8							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH30_0.4-0.5,	BH30_0.9-1.0,	**17-Mar-2024**	**27-Mar-2024**	14-Apr-2024	✓	**28-Mar-2024**	14-Apr-2024	✓
QC100_202240317								
Soil Glass Jar - Unpreserved (EG035T)								
BH39_0.6-0.7,	BH39_1.2-1.3,	**18-Mar-2024**	**27-Mar-2024**	15-Apr-2024	✓	**28-Mar-2024**	15-Apr-2024	✓
QC100_202240318,	HA58_0.0-0.2,							
HA59_0.6-0.7,	HA60_0.7-0.8							
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055)								
BH30_0.4-0.5,	BH30_0.9-1.0	**17-Mar-2024**	**----**	----	----	**02-Apr-2024**	14-Apr-2024	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
HA58_0.0-0.2,	HA59_0.6-0.7,	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
HA60_0.7-0.8								
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
HA58_0.0-0.2		**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP068)								
HA59_0.6-0.7,	HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
HA58_0.0-0.2		**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP068)								
HA59_0.6-0.7,	HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BH30_0.4-0.5,	BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	24-Mar-2024	×	**28-Mar-2024**	24-Mar-2024	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	24-Mar-2024	×	**28-Mar-2024**	24-Mar-2024	×
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	24-Mar-2024	×	**28-Mar-2024**	24-Mar-2024	×
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	24-Mar-2024	×	**28-Mar-2024**	24-Mar-2024	×
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH39_0.6-0.7, BH39_1.2-1.3, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH39_0.6-0.7, BH39_1.2-1.3, QC100_202240318, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP080) QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**26-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH39_0.6-0.7, BH39_1.2-1.3, QC100_202240318, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP080) QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**26-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**27-Mar-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH39_0.6-0.7, BH39_1.2-1.3, QC100_202240318, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE, TSC	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP080) QC100_202240317	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**26-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH30_0.4-0.5, BH30_0.9-1.0	**17-Mar-2024**	**26-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH39_0.6-0.7, BH39_1.2-1.3, QC100_202240318, HA58_0.0-0.2, HA59_0.6-0.7, HA60_0.7-0.8	**18-Mar-2024**	**26-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**28-Mar-2024**	13-Sep-2024	✓	**02-Apr-2024**	07-May-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**28-Mar-2024**	13-Sep-2024	✓	**02-Apr-2024**	07-May-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**28-Mar-2024**	13-Sep-2024	✓	**02-Apr-2024**	07-May-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**28-Mar-2024**	13-Sep-2024	✓	**02-Apr-2024**	07-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
BH30_0.4-0.5, BH30_0.9-1.0, QC100_202240317	**17-Mar-2024**	**28-Mar-2024**	13-Sep-2024	✓	**02-Apr-2024**	07-May-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Buchi Ammonia	EK055	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Foreign Material Content	EA155	SOIL	In house: Referenced to RTA T276. Foreign Material Content
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409702**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 607094736-CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: ERIC SERTTAS		

Dates

Date Samples Received	: 20-Mar-2024 19:30	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 02-Apr-2024	Scheduled Reporting Date	: **02-Apr-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 5	Temperature	: 1.2'C, 2.6'C & 3.4'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 28 / 19

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample ID QC200_20240317 & QC200_20240318 will be forwarded to Eurofins as per COC.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos & FMT analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2409702-009 : [18-Mar-2024] : HA56_0.0-0.05 (Mulch)
ES2409702-011 : [18-Mar-2024] : HA57_0.0-0.05 (Mulch)

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EK055 (solids) Ammonia as N	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2409702-001	17-Mar-2024 00:00	BH30_0.4-0.5		✓	✓	✓	✓	✓	✓
ES2409702-002	17-Mar-2024 00:00	BH30_0.9-1.0		✓		✓	✓	✓	✓
ES2409702-003	17-Mar-2024 00:00	BH30_2.0-2.1	✓						
ES2409702-004	17-Mar-2024 00:00	QC100_202240317		✓				✓	
ES2409702-006	18-Mar-2024 00:00	BH39_0.6-0.7		✓	✓				✓
ES2409702-007	18-Mar-2024 00:00	BH39_1.2-1.3		✓					✓
ES2409702-008	18-Mar-2024 00:00	QC100_202240318		✓					
ES2409702-009	18-Mar-2024 00:00	HA56_0.0-0.05 (Mulch)			✓				
ES2409702-010	18-Mar-2024 00:00	HA56_0.3-0.4	✓						
ES2409702-011	18-Mar-2024 00:00	HA57_0.0-0.05 (Mulch)			✓				
ES2409702-012	18-Mar-2024 00:00	HA57_0.3-0.4	✓						
ES2409702-013	18-Mar-2024 00:00	HA58_0.0-0.2		✓	✓				
ES2409702-014	18-Mar-2024 00:00	HA58_0.4-0.5	✓						
ES2409702-015	18-Mar-2024 00:00	HA59_0.2-0.3	✓						
ES2409702-016	18-Mar-2024 00:00	HA59_0.6-0.7		✓	✓				
ES2409702-017	18-Mar-2024 00:00	HA59_1.0-1.1	✓						
ES2409702-018	18-Mar-2024 00:00	HA60_0.2-0.3	✓						
ES2409702-019	18-Mar-2024 00:00	HA60_0.7-0.8		✓	✓				

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA155 RTA Method T276 Foreign Material Content	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2409702-004	17-Mar-2024 00:00	QC100_202240317					✓
ES2409702-008	18-Mar-2024 00:00	QC100_202240318					✓
ES2409702-013	18-Mar-2024 00:00	HA58_0.0-0.2				✓	
ES2409702-016	18-Mar-2024 00:00	HA59_0.6-0.7				✓	
ES2409702-019	18-Mar-2024 00:00	HA60_0.7-0.8				✓	
ES2409702-020	18-Mar-2024 00:00	HA56_0.05-0.8	✓				
ES2409702-021	18-Mar-2024 00:00	HA57_0.05-0.8	✓				
ES2409702-022	18-Mar-2024 00:00	HA58_0.0-0.5	✓				
ES2409702-023	18-Mar-2024 00:00	HA59_0.0-1.3	✓				
ES2409702-024	18-Mar-2024 00:00	HA60_0.0-1.0	✓				
ES2409702-026	04-Mar-2024 00:00	TRIP BLANK			✓		
ES2409702-027	04-Mar-2024 00:00	TRIP SPIKE		✓			
ES2409702-028	04-Mar-2024 00:00	TSC		✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested
ES2409702-005	17-Mar-2024 00:00	QC300_202240317	✓
ES2409702-025	18-Mar-2024 00:00	QC300_20240318	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EP080: TRH Volatiles/BTEX							
TRIP BLANK	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✘	----	----
TRIP SPIKE	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✘	----	----
TSC	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✘	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils
(SOIL) EA155: Foreign Material Content
(SOIL) EA155: Foreign Material - Type I
(SOIL) EA155: Foreign Material - Type III
(SOIL) EA155: Foreign Material - Type II

ANZ

FQM - Generic Chain of Custody Form

Environmental Division
Sydney
Work Order Reference
ES2409702

Telephone : + 61-2-8784 8555

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric)	PHONE:
PROJECT NUMBER & TASK COI 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite pr	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (ABSENT)	TRHs/BTEXN/ PAHs/ Styrene	PHENOLS	CHCs	Ammonia	PFAS	OCP/OPP/ PCB						HOLD	
1	BH30_0.4-0.5	S	17/3	PM	J,ZLB,PF	1,1,1	X	X	X	X	X	X								
2	-0.9-1.0							X	X	X	X	X								
3	-2.0-2.1																		X	
4	QC100_20240317				I, PF	1,1		X				X								
—	QC200_20240317							X				X								→FORWARD TO
5	QC700-20240317	W	17/3	PM	V,AG,P,PF	2,1,2													X	EUROFINS (QC200)
6	BH39_0.6-0.7	S	18/3	AM	J, ZLB	1,1	X	X	X											
7	-1.2-1.3					1,1		X	X											
8	QC100_20240318				J	1		X												
—	QC200_20240318					1		X												→FORWARD TO
9	HA56_mulch	m	18/3	PM	ZLB	1	X													EUROFINS (QC200)
10	-0.3-0.4	S			J, ZLB	1,1													X	
11	HA57_mulch	m			ZLB	1	X													
12	-0.3-0.4	S			J, ZLB	1,1													X	
13	HA58_0.0-0.2						X	X	X				X							
14	-0.4-0.5																		X	
15	HA59_0.2-0.3																		X	
16	-0.6-0.7						X	X	X				X							
17	-1.0-1.1																		X	
18	HA60_0.2-0.3																		X	
19	-0.7-0.8						X	X	X				X							

Asbestos ENT PAS work
QC200-20240317 forwarded to ES2409702
QC100-20240316 forwarded to ES2409702

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 19/3/24	Name:	Date:	Name: LUCAS	Date: 20/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: ALS	Time: 1430	Transport Co:

Q4AN(EV)-007-FM1 (3)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2015

1/2

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric) PHONE:	ALS
PROJECT NUMBER & TASK COI 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TC eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

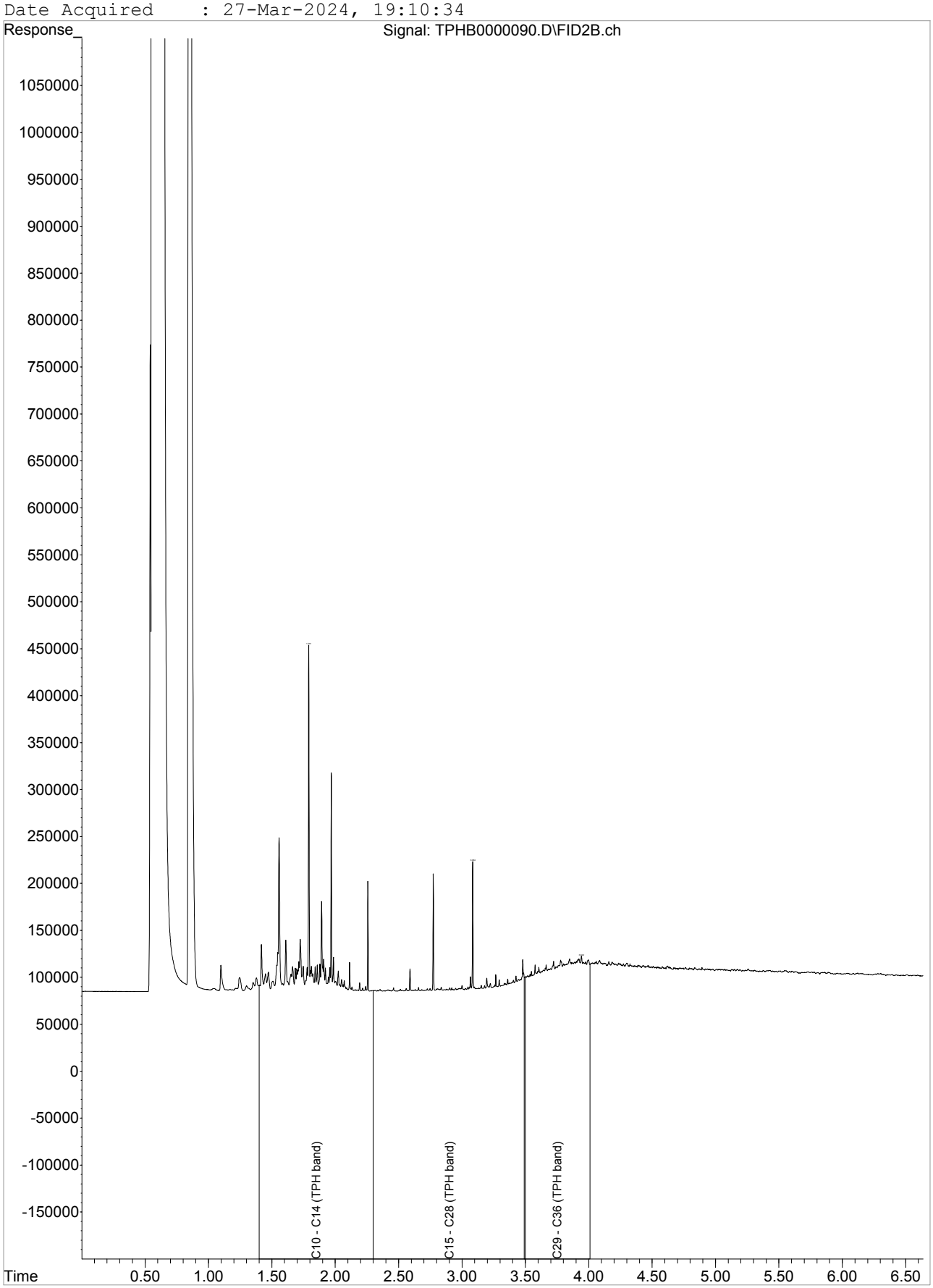
Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	FOREIGN MAT	L6-G3	BTEXN	HOLD
20	HA56_0.0-0.8	S	18/3	PM	DB	1	X			
21	HA57_0.0-0.8	↓	↓	↓	↓	↓	↓			
22	HA58_0.0-0.5									
23	HA59_0.0-1.3									
24	HA60_0.0-1.0	↓	↓	↓	↓	↓				
25	QC300_20240318	W	18/3	↓	V,A6,P	2,1,1				X
26	TRIP BLANK	S	lab prep		J	↓		X		
27	TRIP SPIKE	↓	↓		↓	↓			X	
28	TSC									

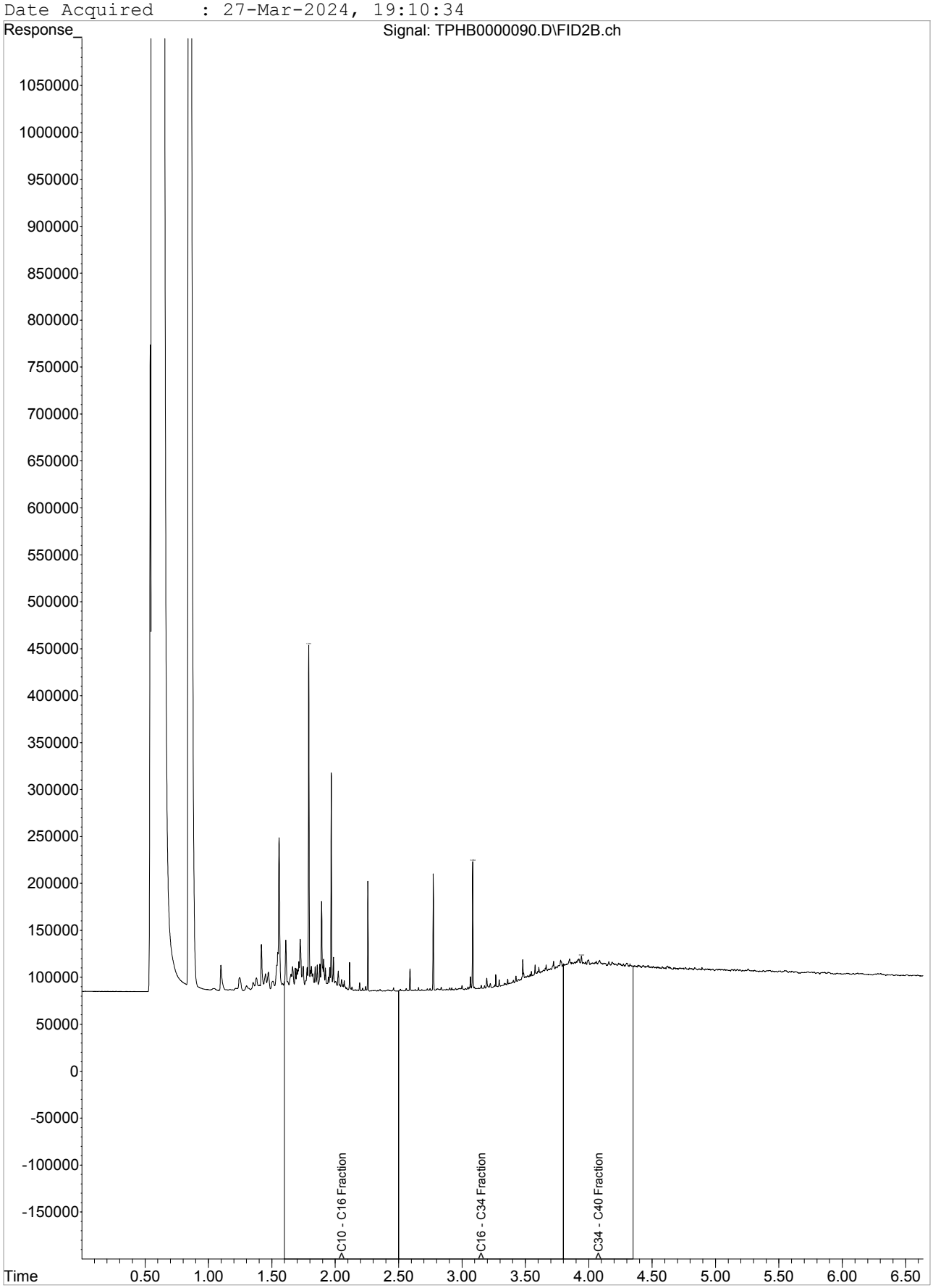
RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 18/3/24	Name:	Date:	Name: WCUS	Date: 20/3/24	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: AS	Time: 1930	Transport Co:

212

Fraction Scheme : Legacy
Data File : TPHB0000090.D
Laboratory Number: ES2409702-006
Sample ID : BH39_0.6-0.7
Date Acquired : 27-Mar-2024, 19:10:34



Fraction Scheme : NEPM
Data File : TPHB0000090.D
Laboratory Number: ES2409702-006
Sample ID : BH39_0.6-0.7
Date Acquired : 27-Mar-2024, 19:10:34



CERTIFICATE OF ANALYSIS

Work Order	: **ES2409727**	Page	: 1 of 33
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024 19:30
Order number	: 60709736	Date Analysis Commenced	: 26-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 15:37
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 31		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG035: Positive Mercury result ES2409727 #30 has been confirmed by reanalysis.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-013, 016-017, 025-028. All analysis results are as per the previous report.
- EG005: Poor matrix spike recovery for Lead and Nickel due to sample heterogeneity. Confirmed by re-extraction and re-analysis.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		7.5	5.9	15.6	16.0	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	No	----	----	No
Asbestos (Trace)	1332-21-4	-	-		No	No	----	----	No
Asbestos Type	1332-21-4	-	--		-	-	----	----	-
Synthetic Mineral Fibre	----	-	--		No	No	----	----	No
Organic Fibre	----	-	--		No	No	----	----	No
Sample weight (dry)	----	0.01	g		202	188	----	----	146
APPROVED IDENTIFIER:	----	-	--		J. PAGE	J. PAGE	----	----	J. PAGE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		7	38	5	9	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		12	12	13	15	----
Copper	7440-50-8	5	mg/kg		19	94	10	30	----
Lead	7439-92-1	5	mg/kg		32	174	20	22	----
Nickel	7440-02-0	2	mg/kg		4	12	13	5	----
Zinc	7440-66-6	5	mg/kg		26	357	420	113	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
			Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**97.3**	**81.6**	----	**86.0**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**106**	**81.7**	----	**113**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**90.6**	**76.0**	----	**97.2**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.3**	**90.9**	**94.4**	**78.5**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH28A_0.8-0.9	R-CO01A_0.2-0.3	R-CO01A_1.2-1.3	ACM_BH05A_0.1-0.2	ACM_BH05A_0.45-0.55
			Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409727-003	ES2409727-006	ES2409727-008	ES2409727-009	ES2409727-010
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2-Chlorophenol-D4	93951-73-6	0.5	%	83.2	82.9	85.0	78.6	----
2.4.6-Tribromophenol	118-79-6	0.5	%	80.4	80.8	80.0	63.2	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	82.4	81.1	83.1	73.4	----
Anthracene-d10	1719-06-8	0.5	%	91.3	91.2	92.1	84.0	----
4-Terphenyl-d14	1718-51-0	0.5	%	89.2	88.2	89.6	78.9	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	102	99.1	91.2	91.5	----
Toluene-D8	2037-26-5	0.2	%	105	100	93.8	85.3	----
4-Bromofluorobenzene	460-00-4	0.2	%	103	98.6	94.5	73.6	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**18.1**	**18.7**	**20.2**	**----**	**----**
EA155: Foreign Material - Type I									
Metal	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Glass	----	0.05	%		**----**	**----**	**----**	**0.13**	<0.05
Asphalt	----	0.05	%		**----**	**----**	**----**	**0.68**	<0.05
Stone	----	0.05	%		**----**	**----**	**----**	**14.5**	**27.6**
Ceramic and Slag (other than blast furnace slag)	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Type I Foreign Materials (Total)	----	0.05	%		**----**	**----**	**----**	**15.3**	**27.6**
EA155: Foreign Material - Type II									
Plaster	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Clay lumps and other Friable Material	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Type II Foreign Materials (Total)	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
EA155: Foreign Material - Type III									
Rubber	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Plastic	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Bitumen	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Paint	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Paper and Cardboard	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Cloth	----	0.05	%		**----**	**----**	**----**	<0.05	<0.05
Wood and other Vegetable Matter	----	0.05	%		**----**	**----**	**----**	**0.06**	<0.05
Type III Foreign Materials (Total)	----	0.05	%		**----**	**----**	**----**	**0.06**	<0.05
EA155: Foreign Material Content									
Percentage Passing 4.75mm Sieve	----	0.1	%		**----**	**----**	**----**	**84.6**	**72.4**
Total Foreign Material	----	0.1	%		**----**	**----**	**----**	**15.4**	**27.6**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	**----**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-		**No**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils - Continued									
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		No	----	----	----	----
Sample weight (dry)	----	0.01	g		251	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		J. PAGE	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	7	8	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		19	15	14	----	----
Copper	7440-50-8	5	mg/kg		7	23	24	----	----
Lead	7439-92-1	5	mg/kg		14	24	24	----	----
Nickel	7440-02-0	2	mg/kg		6	7	7	----	----
Zinc	7440-66-6	5	mg/kg		10	40	31	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**110**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**90.5**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**66.9**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**91.2**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**81.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.2**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**81.2**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**90.2**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_BH09A_0.5-0.6	ACM_BH09A_1.8-1.9	QC100_20240319	R_BH28A_0.0-1.0	ACM_BH05A_0.25-0.6
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-011	ES2409727-013	ES2409727-014	ES2409727-016	ES2409727-017
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	0.5	%		**88.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**95.9**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**97.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**100**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Blank	Trip Spike	BH32_0.015-0.15	BH32_0.65-0.8	BH33A_0.13-0.3
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-018	ES2409727-019	ES2409727-020	ES2409727-022	ES2409727-025
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	----	4.4	13.5	6.3
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	No	----	No
Asbestos (Trace)	1332-21-4	-	-		----	----	No	----	No
Asbestos Type	1332-21-4	-	--		----	----	-	----	-
Synthetic Mineral Fibre	----	-	--		----	----	No	----	No
Organic Fibre	----	-	--		----	----	No	----	No
Sample weight (dry)	----	0.01	g		----	----	716	----	697
APPROVED IDENTIFIER:	----	-	--		----	----	J. PAGE	----	J. PAGE
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	----	<5	6	<5
Cadmium	7440-43-9	1	mg/kg		----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		----	----	65	24	20
Copper	7440-50-8	5	mg/kg		----	----	60	8	8
Lead	7439-92-1	5	mg/kg		----	----	<5	9	8
Nickel	7440-02-0	2	mg/kg		----	----	104	4	5
Zinc	7440-66-6	5	mg/kg		----	----	49	12	15
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	----	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Blank	Trip Spike	BH32_0.015-0.15	BH32_0.65-0.8	BH33A_0.13-0.3
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-018	ES2409727-019	ES2409727-020	ES2409727-022	ES2409727-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	----	**0.6**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	----	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip Blank	Trip Spike	BH32_0.015-0.15	BH32_0.65-0.8	BH33A_0.13-0.3
				Sampling date / time	04-Mar-2024 00:00	04-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00	19-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409727-018	ES2409727-019	ES2409727-020	ES2409727-022	ES2409727-025
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	**4.0**	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	**6.8**	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	**7.6**	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	**3.0**	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	**21.4**	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	**10.6**	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**93.7**	**92.0**	**88.3**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**85.7**	**85.0**	**79.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**79.3**	**79.6**	**74.6**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**83.2**	**81.5**	**76.6**
Anthracene-d10	1719-06-8	0.5	%		----	----	**91.2**	**89.5**	**85.8**
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**89.5**	**87.9**	**84.2**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**110**	**103**	**102**	**94.3**	**100**
Toluene-D8	2037-26-5	0.2	%		**102**	**102**	**104**	**94.8**	**102**
4-Bromofluorobenzene	460-00-4	0.2	%		**99.8**	**99.5**	**102**	**95.8**	**101**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
			Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.6**	**7.8**	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	**No**	----	----	----
Asbestos (Trace)	1332-21-4	-	-	----	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	----	**-**	----	----	----
Synthetic Mineral Fibre	----	-	--	----	**No**	----	----	----
Organic Fibre	----	-	--	----	**No**	----	----	----
Sample weight (dry)	----	0.01	g	----	**318**	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	**B.SCHRADER**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	**6**	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**22**	**14**	----	----	----
Copper	7440-50-8	5	mg/kg	**7**	**17**	----	----	----
Lead	7439-92-1	5	mg/kg	**9**	**23**	----	----	----
Nickel	7440-02-0	2	mg/kg	**4**	**4**	----	----	----
Zinc	7440-66-6	5	mg/kg	**11**	**33**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	**0.1**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
			Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**4.6**	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**7.8**	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**8.6**	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**3.4**	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	**24.4**	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**12.0**	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**116**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**82.3**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**64.4**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.0**	**90.7**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**85.0**	**81.8**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**79.1**	**75.3**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH33A_0.8-1.0	R_TP11_0.3-0.5	TSC	----	----
				Sampling date / time	19-Mar-2024 00:00	19-Mar-2024 00:00	04-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2409727-027	ES2409727-030	ES2409727-031	--------	--------
					Result	Result	Result	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**81.6**	**79.9**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**90.0**	**88.7**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**88.4**	**87.1**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.3**	**99.6**	**99.5**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**98.7**	**103**	**99.7**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**97.6**	**99.8**	**97.3**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240319	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409727-015	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
^ **Total Polychlorinated biphenyls**	----	1	µg/L		<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L		<0.5	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.5	µg/L		<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240319	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409727-015	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	----	----	----	----
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	----	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L		<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L		<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240319	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409727-015	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.5	µg/L		<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240319	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409727-015	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240319	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409727-015	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%		**93.5**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		**79.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		**65.4**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**30.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**39.8**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**38.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**66.5**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**56.3**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**65.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**115**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**98.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**99.8**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	*Sample ID - Sampling date / time*	*Analytical Results*
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R_BH28A_0.8-0.9 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	R-CO01A_0.2-0.3 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	ACM_BH05A_0.45-0.55 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	ACM_BH09A_0.5-0.6 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	BH32_0.015-0.15 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	BH33A_0.13-0.3 - 19-Mar-2024 00:00	Soil sample.
EA200: Description	R_TP11_0.3-0.5 - 19-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	45	134
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates - Continued			
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material Content

(SOIL) EA155: Foreign Material - Type I

(SOIL) EA155: Foreign Material - Type III

(SOIL) EA155: Foreign Material - Type II

QUALITY CONTROL REPORT

Work Order	: **ES2409727**	Page	: 1 of 27
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 26-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 31		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5691287)									
ES2409727-006	R-CO01A_0.2-0.3	EG005T: Copper	7440-50-8	5	mg/kg	94	105	11.2	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	174	142	19.8	0% - 20%
ES2409702-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	18	33.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	8	15.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	15.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	10	0.0	No Limit
ES2409727-006	R-CO01A_0.2-0.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	13	11.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	12	10	22.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	38	27	32.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	357	345	3.5	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5700451)									
ES2409727-009	ACM_BH05A_0.1-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	10	38.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	11	14.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	30	28	5.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	20	6.9	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5700451) - continued									
ES2409727-009	ACM_BH05A_0.1-0.2	EG005T: Zinc	7440-66-6	5	mg/kg	113	121	7.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5691289)									
ES2409702-004	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	8.6	10.2	16.6	0% - 50%
ES2409727-013	ACM_BH09A_1.8-1.9	EA055: Moisture Content	----	0.1 (1.0)*	%	18.7	18.5	1.1	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5691288)									
ES2409702-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2409727-006	R-CO01A_0.2-0.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5700452)									
ES2409727-009	ACM_BH05A_0.1-0.2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5687095)									
ES2409702-013	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5700724)									
EW2401527-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EW2401527-008	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5687094)									
ES2409702-013	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5700723)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5700723) - continued									
EW2401527-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EW2401527-008	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5700723) - continued									
EW2401527-008	Anonymous	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5687094)									
ES2409702-013	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5700723)									
EW2401527-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5700723) - continued									
EW2401527-001	Anonymous	EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EW2401527-008	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5687092)									
ES2409727-006	R-CO01A_0.2-0.3	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5687092) - continued									
ES2409727-006	R-CO01A_0.2-0.3	EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2409702-013	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5700722)									
EW2401527-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EW2401527-008	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5687092)									
ES2409727-006	R-CO01A_0.2-0.3	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2409702-013	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.9	0.6	41.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.0	1.7	17.7	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.9	1.6	15.6	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.6	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.1	1.1	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.9	0.8	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.8	0.7	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5687092) - continued									
ES2409702-013	Anonymous	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	9.7	8.4	14.4	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	1.0	10.2	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5700722)									
EW2401527-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EW2401527-008	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5700722) - continued									
EW2401527-008	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409702-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5687093)									
ES2409727-006	R-CO01A_0.2-0.3	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409702-013	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5687118)									
ES2409226-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409727-003	R_BH28A_0.8-0.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5700721)									
EW2401527-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EW2401527-008	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5704129)									
ES2410635-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EW2401553-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409702-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687093)									
ES2409727-006	R-CO01A_0.2-0.3	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409702-013	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687093) - continued									
ES2409702-013	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5687118)									
ES2409226-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409727-003	R_BH28A_0.8-0.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5700721)									
EW2401527-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EW2401527-008	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5704129)									
ES2410635-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EW2401553-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5686775)									
ES2409690-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409702-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5687118)									
ES2409226-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5687118) - continued									
ES2409226-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409727-003	R_BH28A_0.8-0.9	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5704129)									
ES2410635-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EW2401553-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5709260)									
ES2410769-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2410747-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5709260) - continued									
ES2410747-001	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.014	0.011	23.9	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5713070)									
EN2402851-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2410368-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2410397-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5691287)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	93.9	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	101	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	118	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	98.5	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	94.7	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.8	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.4	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5700451)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	98.8	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.42 mg/kg	112	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	122	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	107	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	96.1	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	101	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	94.3	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5691288)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	125	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5700452)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	92.7	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5687095)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	97.9	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5700724)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	96.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	67.0	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094) - continued								
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.7	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	83.1	54.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5700723)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5700723) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	83.0	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	79.3	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5687094)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	92.4	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	85.9	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	82.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	73.9	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5700723)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	81.0	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	74.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	76.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5700723) - continued								
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	101	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	79.9	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	53.0	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5687092)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.4	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	80.5	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.3	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	89.0	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	93.6	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	88.9	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.6	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	85.3	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	52.7	10.0	80.0
EP075(SIM)A: Phenolic Compounds (QCLot: 5700722)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	89.5	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	92.7	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.5	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.6	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	69.3	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	84.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	82.1	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	89.9	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	82.6	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	81.2	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	85.2	60.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5700722) - continued								
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	57.1	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5687092)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	88.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.7	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.0	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	94.5	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.2	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.5	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.1	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	104	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	102	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	95.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.6	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5700722)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	93.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.1	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	93.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	91.7	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.6	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.8	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.2	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	90.2	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.3	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	91.2	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	92.8	61.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5700722) - continued								
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	94.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	89.7	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5686775)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	93.5	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687093)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	96.9	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	96.5	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	85.9	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687118)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	105	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5700721)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	100	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	105	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	102	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5704129)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.0	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5686775)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687093)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.9	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	93.0	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	79.1	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687118)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	99.3	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5700721)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	103	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	101	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5704129)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	76.8	72.4	133
EP080: BTEXN (QCLot: 5686775)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.5	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.9	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.9	77.4	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5686775) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.1	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.1	78.8	122
EP080: BTEXN (QCLot: 5687118)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	119	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	113	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	113	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	108	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	111	78.8	122
EP080: BTEXN (QCLot: 5704129)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	77.8	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.4	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.9	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.2	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.7	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5709260)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	85.4	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	85.8	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.2	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	86.3	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.9	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	84.8	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5713070)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	77.0	111
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5700644)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	85.5	68.9	113

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5700642)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	78.3	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	103	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	87.0	69.0	117
EP068: gamma-BHC - (Lindane)	58-89-9	0.5	µg/L	<0.5	5 µg/L	82.5	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	86.1	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	104	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	86.2	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	82.8	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	81.8	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	83.3	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.3	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	85.5	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	84.9	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	94.6	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	91.6	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	84.7	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	77.9	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	87.5	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	101	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	106	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	108	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5700642)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	93.8	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	98.5	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.7	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	99.1	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	88.0	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	84.9	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	91.3	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	95.2	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	87.8	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	85.8	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	88.2	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	90.6	69.0	121

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5700642) - continued								
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	95.6	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	85.3	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	105	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	87.5	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	88.5	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	99.4	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	106	51.6	128
EP075(SIM)A: Phenolic Compounds (QCLot: 5700643)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	38.2	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	71.5	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	62.9	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	61.9	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	65.3	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	72.3	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	68.9	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	69.0	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	71.0	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	65.2	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	68.4	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	64.4	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5700643)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	63.7	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	71.7	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	66.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	71.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	75.2	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.7	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	89.9	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	94.9	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	92.7	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	95.7	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	97.4	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	84.1	63.0	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5700643) - continued								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	93.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	74.4	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	79.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5700641)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	63.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	90.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	89.6	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5700641)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	61.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	86.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	91.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75.0	127
EP080: BTEXN (QCLot: 5703486)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.6	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5691287)							
ES2409702-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	124	68.0	132

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5691287) - continued							
ES2409702-001	Anonymous	EG005T: Copper	7440-50-8	250 mg/kg	99.2	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	100	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	102	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5700451)							
ES2409727-009	ACM_BH05A_0.1-0.2	EG005T: Arsenic	7440-38-2	400 mg/kg	71.0	70.0	130
		EG005T: Cadmium	7440-43-9	400 mg/kg	73.0	70.0	130
		EG005T: Chromium	7440-47-3	400 mg/kg	69.6	68.0	132
		EG005T: Copper	7440-50-8	2000 mg/kg	70.0	70.0	130
		EG005T: Lead	7439-92-1	2000 mg/kg	# 68.0	70.0	130
		EG005T: Nickel	7440-02-0	400 mg/kg	# 69.8	70.0	130
		EG005T: Zinc	7440-66-6	2000 mg/kg	68.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5691288)							
ES2409702-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	126	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5700452)							
ES2409727-009	ACM_BH05A_0.1-0.2	EG035T: Mercury	7439-97-6	5 mg/kg	108	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5687095)							
ES2409702-013	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	98.6	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5700724)							
EW2401527-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	107	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5687094)							
ES2409702-013	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	94.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	87.2	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	85.9	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	100	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	86.3	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	84.1	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5700723)							
EW2401527-001	Anonymous	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	76.7	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	81.3	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	101	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	103	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	82.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	70.7	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5687094)							
ES2409702-013	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	86.3	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5687094) - continued							
ES2409702-013	Anonymous	EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	91.8	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	89.9	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	81.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5700723)							
EW2401527-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	107	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.5	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	79.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	87.2	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.9	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5687092)							
ES2409702-013	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.5	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	87.8	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	81.6	20.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5700722)							
EW2401527-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	90.8	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.1	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.2	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	81.3	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5687092)							
ES2409702-013	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.6	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.8	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5700722)							
EW2401527-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	88.4	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687093)							
ES2409702-013	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	128	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	124	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	127	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5687118)							
ES2409226-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	108	60.4	142

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5700721)							
EW2401527-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	99.8	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	108	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	113	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5704129)							
ES2410635-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	78.9	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.9	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687093)							
ES2409702-013	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	120	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	126	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5687118)							
ES2409226-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5700721)							
EW2401527-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	102	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	110	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	113	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5704129)							
ES2410635-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	76.0	61.1	142
EP080: BTEXN (QCLot: 5686775)							
ES2409690-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	102	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	93.9	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	107	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	111	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	107	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	107	61.1	115
EP080: BTEXN (QCLot: 5687118)							
ES2409226-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	105	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	103	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	109	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	113	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	109	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	115	61.1	115
EP080: BTEXN (QCLot: 5704129)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 5704129) - continued							
ES2410635-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.3	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	95.0	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	95.1	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.7	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	111	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5709260)							
ES2410129-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	116	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	114	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	113	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	108	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	107	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	114	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	114	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5713070)							
EN2402851-005	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	83.7	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	77.6	70.0	130
EP080: BTEXN (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	95.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	93.0	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.4	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	106	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409727**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS	No. of samples received	: 31
Order number	: 60709736	No. of samples analysed	: 19

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	ES2409727--009	ACM_BH05A_0.1-0.2	**Lead**	7439-92-1	68.0 %	70.0-130%	**Recovery less than lower data quality objective**
EG005(ED093)T: Total Metals by ICP-AES	ES2409727--009	ACM_BH05A_0.1-0.2	**Nickel**	7440-02-0	69.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	----	----	----	03-Apr-2024	02-Apr-2024	**1**
EP066: Polychlorinated Biphenyls (PCB)						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP068A: Organochlorine Pesticides (OC)						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
Trip Blank	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
Trip Blank	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time						
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
Trip Blank, Trip Spike, TSC	26-Mar-2024	18-Mar-2024	**8**	27-Mar-2024	18-Mar-2024	**9**
Soil Glass Jar - Unpreserved						
ACM_BH05A_0.1-0.2	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP066: Polychlorinated Biphenyls (PCB)						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
EP068A: Organochlorine Pesticides (OC)						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
EP068B: Organophosphorus Pesticides (OP)						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----
Amber VOC Vial - Sulfuric Acid						
QC300_20240319	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_20240319	03-Apr-2024	26-Mar-2024	**8**	----	----	----

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time						
Amber VOC Vial - Sulfuric Acid						
QC300_20240319	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
EP080: BTEXN						
Amber VOC Vial - Sulfuric Acid						
QC300_20240319	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
Moisture Content	EA055	2	22	9.09	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**----**	----	----	**27-Mar-2024**	02-Apr-2024	✓
R-CO01A_1.2-1.3,	ACM_BH09A_0.5-0.6,							
ACM_BH09A_1.8-1.9,	QC100_20240319,							
BH32_0.015-0.15,	BH32_0.65-0.8,							
BH33A_0.13-0.3,	BH33A_0.8-1.0,							
R_TP11_0.3-0.5								
Soil Glass Jar - Unpreserved (EA055)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**----**	----	----	**03-Apr-2024**	02-Apr-2024	×
EA155: Foreign Material - Type I								
Snap Lock Bag (EA155)								
R_BH28A_0.0-1.0,	ACM_BH05A_0.25-0.6	**19-Mar-2024**	**----**	----	----	**02-Apr-2024**	15-Sep-2024	✓
EA155: Foreign Material - Type II								
Snap Lock Bag (EA155)								
R_BH28A_0.0-1.0,	ACM_BH05A_0.25-0.6	**19-Mar-2024**	**----**	----	----	**02-Apr-2024**	15-Sep-2024	✓
EA155: Foreign Material - Type III								
Snap Lock Bag (EA155)								
R_BH28A_0.0-1.0,	ACM_BH05A_0.25-0.6	**19-Mar-2024**	**----**	----	----	**02-Apr-2024**	15-Sep-2024	✓
EA155: Foreign Material Content								
Snap Lock Bag (EA155)								
R_BH28A_0.0-1.0,	ACM_BH05A_0.25-0.6	**19-Mar-2024**	**----**	----	----	**02-Apr-2024**	15-Sep-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**----**	----	----	**27-Mar-2024**	15-Sep-2024	✓
ACM_BH05A_0.45-0.55,	ACM_BH09A_0.5-0.6,							
BH32_0.015-0.15,	BH33A_0.13-0.3							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
R_TP11_0.3-0.5		**19-Mar-2024**	**----**	----	----	**28-Mar-2024**	15-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**03-Apr-2024**	15-Sep-2024	✓	**04-Apr-2024**	15-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**27-Mar-2024**	15-Sep-2024	✓	**27-Mar-2024**	15-Sep-2024	✓
R-CO01A_1.2-1.3,	ACM_BH09A_0.5-0.6,							
ACM_BH09A_1.8-1.9,	QC100_20240319,							
BH32_0.015-0.15,	BH32_0.65-0.8,							
BH33A_0.13-0.3,	BH33A_0.8-1.0,							
R_TP11_0.3-0.5								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**03-Apr-2024**	16-Apr-2024	✓	**05-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**27-Mar-2024**	16-Apr-2024	✓	**28-Mar-2024**	16-Apr-2024	✓
R-CO01A_1.2-1.3,	ACM_BH09A_0.5-0.6,							
ACM_BH09A_1.8-1.9,	QC100_20240319,							
BH32_0.015-0.15,	BH32_0.65-0.8,							
BH33A_0.13-0.3,	BH33A_0.8-1.0,							
R_TP11_0.3-0.5								
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP066)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
ACM_BH09A_0.5-0.6,	R_TP11_0.3-0.5							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP068)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
ACM_BH09A_0.5-0.6,	R_TP11_0.3-0.5							
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP068)								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**28-Mar-2024**	05-May-2024	✓
ACM_BH09A_0.5-0.6,	R_TP11_0.3-0.5							
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
ACM_BH09A_0.5-0.6,	R_TP11_0.3-0.5							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
ACM_BH05A_0.1-0.2		**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
R_BH28A_0.8-0.9,	R-CO01A_0.2-0.3,	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**27-Mar-2024**	05-May-2024	✓
R-CO01A_1.2-1.3,	ACM_BH09A_0.5-0.6,							
BH32_0.015-0.15,	BH32_0.65-0.8,							
BH33A_0.13-0.3,	BH33A_0.8-1.0,							
R_TP11_0.3-0.5								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) Trip Blank	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP071) ACM_BH05A_0.1-0.2	**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_BH05A_0.1-0.2	**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080) R_BH28A_0.8-0.9, R-CO01A_0.2-0.3, R-CO01A_1.2-1.3, ACM_BH09A_0.5-0.6, BH32_0.015-0.15, BH32_0.65-0.8, BH33A_0.13-0.3, BH33A_0.8-1.0, R_TP11_0.3-0.5	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**27-Mar-2024**	02-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) Trip Blank	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP071) ACM_BH05A_0.1-0.2	**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) ACM_BH05A_0.1-0.2	**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080) R_BH28A_0.8-0.9, R-CO01A_0.2-0.3, R-CO01A_1.2-1.3, ACM_BH09A_0.5-0.6, BH32_0.015-0.15, BH32_0.65-0.8, BH33A_0.13-0.3, BH33A_0.8-1.0, R_TP11_0.3-0.5	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**27-Mar-2024**	02-Apr-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Trip Blank, Trip Spike, TSC	**04-Mar-2024**	**26-Mar-2024**	18-Mar-2024	×	**27-Mar-2024**	18-Mar-2024	×
Soil Glass Jar - Unpreserved (EP080) ACM_BH05A_0.1-0.2	**19-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080) R_BH28A_0.8-0.9, R-CO01A_0.2-0.3, R-CO01A_1.2-1.3, ACM_BH09A_0.5-0.6, BH32_0.015-0.15, BH32_0.65-0.8, BH33A_0.13-0.3, BH33A_0.8-1.0, R_TP11_0.3-0.5	**19-Mar-2024**	**26-Mar-2024**	02-Apr-2024	✓	**27-Mar-2024**	02-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240319	19-Mar-2024	06-Apr-2024	15-Sep-2024	✓	06-Apr-2024	15-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240319	19-Mar-2024	----	----	----	10-Apr-2024	16-Apr-2024	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	06-Apr-2024	13-May-2024	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	06-Apr-2024	13-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	06-Apr-2024	13-May-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	06-Apr-2024	13-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	06-Apr-2024	13-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	05-Apr-2024	13-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240319	19-Mar-2024	04-Apr-2024	02-Apr-2024	×	04-Apr-2024	02-Apr-2024	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240319	19-Mar-2024	03-Apr-2024	26-Mar-2024	×	05-Apr-2024	13-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240319	19-Mar-2024	04-Apr-2024	02-Apr-2024	×	04-Apr-2024	02-Apr-2024	×
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240319	19-Mar-2024	04-Apr-2024	02-Apr-2024	×	04-Apr-2024	02-Apr-2024	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	22	**9.09**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	51	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Foreign Material Content	EA155	SOIL	In house: Referenced to RTA T276. Foreign Material Content
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409727**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: ERIC SERTTAS		

Dates

Date Samples Received	: 20-Mar-2024 19:30	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 10-Apr-2024	Scheduled Reporting Date	: **15-Apr-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 5	Temperature	: 1.2'C, 2.6'C & 3.4'C
Receipt Detail	:	No. of samples received / analysed	: 31 / 19

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **Sample ID QC200_20240319**
- **Coal Tar analysis to be conducted by Envirolab**
- This is an updated SRN following a request to change sample IDs as per Eric Serttas on the 9/04/2024.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Asbestos & FMT analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2409727-001	19-Mar-2024 00:00	R_BH28A_0.2-0.3	✓						
ES2409727-002	19-Mar-2024 00:00	R_BH28A_0.5-0.6	✓						
ES2409727-003	19-Mar-2024 00:00	R_BH28A_0.8-0.9		✓	✓			✓	
ES2409727-004	19-Mar-2024 00:00	R_BH28A_1.1-1.2	✓						
ES2409727-005	19-Mar-2024 00:00	R-CO01A_0.0-0.07				✓			
ES2409727-006	19-Mar-2024 00:00	R-CO01A_0.2-0.3		✓	✓			✓	
ES2409727-007	19-Mar-2024 00:00	R-CO01A_0.6-0.8	✓						
ES2409727-008	19-Mar-2024 00:00	R-CO01A_1.2-1.3		✓					✓
ES2409727-009	19-Mar-2024 00:00	ACM_BH05A_0.1-0.2		✓				✓	
ES2409727-010	19-Mar-2024 00:00	ACM_BH05A_0.45-0.55			✓				
ES2409727-011	19-Mar-2024 00:00	ACM_BH09A_0.5-0.6		✓	✓			✓	
ES2409727-012	19-Mar-2024 00:00	ACM_BH09A_1.3-1.4	✓						
ES2409727-013	19-Mar-2024 00:00	ACM_BH09A_1.8-1.9		✓			✓		
ES2409727-014	19-Mar-2024 00:00	QC100_20240319		✓			✓		
ES2409727-020	19-Mar-2024 00:00	BH32_0.015-0.15		✓	✓				✓
ES2409727-021	19-Mar-2024 00:00	BH32_0.15-0.65	✓						
ES2409727-022	19-Mar-2024 00:00	BH32_0.65-0.8		✓					✓
ES2409727-023	19-Mar-2024 00:00	BH32_1.7-1.9	✓						
ES2409727-024	19-Mar-2024 00:00	BH33_0.04-0.075	✓						
ES2409727-025	19-Mar-2024 00:00	BH33A_0.13-0.3		✓	✓				✓
ES2409727-026	19-Mar-2024 00:00	BH33A_0.3-0.5	✓						
ES2409727-027	19-Mar-2024 00:00	BH33A_0.8-1.0		✓					✓
ES2409727-028	19-Mar-2024 00:00	BH33A_1.6-1.8	✓						
ES2409727-029	19-Mar-2024 00:00	R_TP11_0.0-0.1	✓						
ES2409727-030	19-Mar-2024 00:00	R_TP11_0.3-0.5		✓	✓			✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA155 RTA Method T276 Foreign Material Content	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2409727-016	19-Mar-2024 00:00	R_BH28A_0.0-1.0	✓		
ES2409727-017	19-Mar-2024 00:00	ACM_BH05A_0.25-0.6	✓		
ES2409727-018	04-Mar-2024 00:00	Trip Blank			✓
ES2409727-019	04-Mar-2024 00:00	Trip Spike		✓	
ES2409727-031	04-Mar-2024 00:00	TSC		✓	

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-19T TRH/BTEXN/PAH/Phenols/OC/OP/PCB/8 metals
ES2409727-015	19-Mar-2024 00:00	QC300_20240319	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP080: TRH Volatiles/BTEX							
Trip Blank	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✗	----	----
Trip Spike	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✗	----	----
TSC	Soil Glass Jar - Unpreserved	18-Mar-2024	18-Mar-2024	20-Mar-2024	✗	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils
(SOIL) EA155: Foreign Material Content
(SOIL) EA155: Foreign Material - Type I
(SOIL) EA155: Foreign Material - Type III
(SOIL) EA155: Foreign Material - Type II

Environmental Division
Sydney
Work Order Reference
ES2409727

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Lat ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68((Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.seritas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly conta
e.g. *High PAHs expect
Extra volume for QC or

Telephone : +61-2-8784 8555

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		FOREIGN MATL	ASBESTOS (CABS / PACM)	OCP/OPP/PCB	TRH/BTEXN/ PAH/Some TRH	PHENOLS	COAL TAR	8 METALS	C6 - C9	BTEXN				HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	R-BH28(A)_0.2-0.3	S	29/3	PM	J, ZLD	1,1														
2	-0.5-0.6																			
3	-0.8-0.9							X	X	X	X									
4	-1.1-1.2																			
5	R-CO01(A)_0.0	M			ZLD	1						X								
6	-0.2-0.3	S			J, ZLD	1,1		X	X	X	X									
7	-0.6-0.8																			
8	-1.2-1.3									X										
9	ACM_BH05(A)_0.2																			
10	-0.45							X												
11	ACM_BH09(A)_0.5-0.6							X	X	X	X									
12	-1.3-1.4																		X	
13	-1.8-1.9												X						X	
14	QC100-20240319				J	1							X							
—	QC200-20240319					1							X						→ FORWARD TO	
15	QC300-20240319	W			V,AG,P	2,1,1													X	EUROFINS
16	R-BH28(A)_0.0-1.0	S			BB	1	X													
17	ACM-BH05(A)_0.25-0.6						X													
18	TRIP BLANK		lab prepare		J	1								X						
19	TRIP SPIKE					1									X					

Organised By / Date: QC200-20240319(Eurofins)
Refrigerant Ice / Blue
Console / Courier
WO No: ES2409727
Attached By PO / Internal Sheet:

Asbestos / Waterlab
AFM + Tau (Envirolab)
Forward Lab / Split WO
Sub Lab Analysis: Coo

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERITAS	Date: 20/3/24	Name:	Date:	Name: WAS	Date: 20/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AU	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GEO TEAM	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68! (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (AB/AF/FA)	TRH/BTEX/N/ PAH / 8METALS	OCP/OPP/PCB	PHENOLS								HOLD
20	BH32-0.015-0.15	S	19/3	AM	J, ZB	51	X	X										
21	-0.15-0.65																	
22	-0.65-0.8							X										
23	-1.7-1.9																	
24	BH33-0.04-0.075			PM														
25	-0.17-0.3						X	X										
26	-0.3-0.5																	
27	-0.8-1.0							X										
28	-1.6-1.8																	
29	R-TP11-0.0-0.1			PM														
30	-0.3-0.5						X	X	X	X								
31	TS																	

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 20/3/24	Name:	Date:	Name: WQS	Date: 20/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AU	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 2 of 2

CERTIFICATE OF ANALYSIS

Work Order	: **ES2409765**	Page	: 1 of 22
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024 20:20
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:08
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 13		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 003-012 . All analysis results are as per the previous report.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.8	9.3	7.2	19.7	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos (Trace)	1332-21-4	-	-	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Synthetic Mineral Fibre	----	-	--	----	----	----	----	No
Organic Fibre	----	-	--	----	----	----	----	No
Sample weight (dry)	----	0.01	g	----	----	----	----	768
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	B.SCHRADER
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	15	16	38	<5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	11	7	17	20	----
Copper	7440-50-8	5	mg/kg	30	30	84	18	----
Lead	7439-92-1	5	mg/kg	88	88	261	20	----
Nickel	7440-02-0	2	mg/kg	5	6	14	6	----
Zinc	7440-66-6	5	mg/kg	379	304	1210	18	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	----	----	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	----	----	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	----	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg	----	----	----	<5	----
Vinyl chloride	75-01-4	5	mg/kg	----	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg	----	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg	----	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg	----	----	----	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	----	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	----	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	----	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	----	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	----	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	----	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	----	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	----	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	----	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	----	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	----	----	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	----	----	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	----	----	<0.5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	----	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	----	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		**1.1**	**1.0**	**0.9**	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		**2.5**	**2.2**	**2.1**	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		**2.4**	**2.0**	**1.9**	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.9**	**0.7**	**0.7**	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		**1.0**	**0.8**	**0.7**	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.3**	**0.9**	**1.0**	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**0.6**	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.2**	**1.0**	**1.0**	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.8**	**0.7**	**0.6**	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.8**	**0.7**	**0.6**	<0.5	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**12.6**	**10.0**	**9.5**	<0.5	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**1.6**	**1.2**	**1.2**	<0.5	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**1.8**	**1.5**	**1.5**	**0.6**	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**2.1**	**1.8**	**1.8**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**80.4**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	**86.4**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	**88.3**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	----	**109**	----
Toluene-D8	2037-26-5	0.5	%		----	----	----	**109**	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	----	**116**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**80.7**	**84.6**	**86.2**	**80.2**	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**81.3**	**87.5**	**85.1**	**81.4**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240322	QC200_20240322	R-BH16A_0.4-0.6	R-BH37_0.9-1.1	R-BH37_0.0-0.2
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409765-001	ES2409765-002	ES2409765-006	ES2409765-008	ES2409765-009
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	0.5	%		78.4	75.9	75.9	74.9	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		92.0	98.5	100	96.5	----
Anthracene-d10	1719-06-8	0.5	%		95.0	100	101	103	----
4-Terphenyl-d14	1718-51-0	0.5	%		90.2	89.4	95.7	95.0	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		113	110	121	114	----
Toluene-D8	2037-26-5	0.2	%		120	103	114	106	----
4-Bromofluorobenzene	460-00-4	0.2	%		128	113	126	122	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2409765-010	ES2409765-011	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**20.6**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	**No**	----	----	----
Asbestos (Trace)	1332-21-4	-	-	----	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	----	**-**	----	----	----
Synthetic Mineral Fibre	----	-	--	----	**No**	----	----	----
Organic Fibre	----	-	--	----	**No**	----	----	----
Sample weight (dry)	----	0.01	g	----	**582**	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	**J. PAGE**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**23**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**16**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**19**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**7**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**25**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-010	ES2409765-011	--------	--------	--------
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	5	mg/kg		<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-010	ES2409765-011	--------	--------	--------
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-010	ES2409765-011	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-010	ES2409765-011	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**97.2**	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		**110**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**116**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**86.0**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**87.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**77.8**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH37_0.4-0.6	R-BH16A_0.4-06	----	----	----
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-010	ES2409765-011	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**101**	**----**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**107**	**----**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**99.3**	**----**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**101**	**----**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**106**	**----**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**118**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240322	----	----	----	----
				Sampling date / time	22-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-013	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240322	----	----	----	----
				Sampling date / time	22-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-013	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**27.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240322	----	----	----	----
				Sampling date / time	22-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409765-013	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**37.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**40.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**68.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**81.7**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**85.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**120**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**94.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**93.4**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R-BH37_0.0-0.2 - 22-Mar-2024 00:00	A soil sample.
EA200: Description	R-BH16A_0.4-06 - 22-Mar-2024 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2409765**	Page	: 1 of 17
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 13		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5693083)									
ES2409337-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	144	163	12.4	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	59	62	4.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	9	30.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	641	674	5.1	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	175	174	0.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	4770	5150	7.6	0% - 20%
ES2409765-008	R-BH37_0.9-1.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	19	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	21	5.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	19	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5693087)									
ES2409765-002	QC200_20240322	EA055: Moisture Content	----	0.1 (1.0)*	%	9.3	9.5	1.9	No Limit
ES2409942-006	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	21.5	21.6	0.6	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5693084)									
ES2409603-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2409765-008	R-BH37_0.9-1.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5689986)									
ES2409765-006	R-BH16A_0.4-0.6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5689985)									
ES2409765-006	R-BH16A_0.4-0.6	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5689985)									
ES2409765-006	R-BH16A_0.4-0.6	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5689985) - continued									
ES2409765-006	R-BH16A_0.4-0.6	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5689353)									
ES2409765-008	R-BH37_0.9-1.1	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5689353)									
ES2409765-008	R-BH37_0.9-1.1	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5689353) - continued									
ES2409765-008	R-BH37_0.9-1.1	EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5689353)									
ES2409765-008	R-BH37_0.9-1.1	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5689353)									
ES2409765-008	R-BH37_0.9-1.1	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5689983)									
ES2409765-006	R-BH16A_0.4-0.6	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689983)									
ES2409765-006	R-BH16A_0.4-0.6	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689983) - continued									
ES2409765-006	R-BH16A_0.4-0.6	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.9	1.0	13.2	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.1	2.2	8.4	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.9	2.2	16.1	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	0.8	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.0	1.1	14.9	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.0	1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	0.7	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.6	0.7	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	9.5	10.4	9.0	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.2	1.3	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689352)									
ES2409822-006	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409765-008	R-BH37_0.9-1.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689984)									
ES2409765-006	R-BH16A_0.4-0.6	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689352)									
ES2409822-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409765-008	R-BH37_0.9-1.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689984)									
ES2409765-006	R-BH16A_0.4-0.6	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5689352)									
ES2409822-006	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5689352) - continued									
ES2409822-006	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409765-008	R-BH37_0.9-1.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5691296)									
ES2409765-013	QC300_20240322	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2409549-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.059	0.056	4.4	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.006	17.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5694969)									
ES2409451-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2409549-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689671)									
ES2409610-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2409796-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689671)									
ES2409610-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2409796-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5689671)									
ES2409610-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5689671) - continued									
ES2409610-006	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2409796-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5693083)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	97.0	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	102	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	113	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	104	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	100	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.8	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	91.5	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5693084)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.0	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5689986)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	102	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689985)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	75.7	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.5	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689985) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.6	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	83.2	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5689985)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	84.2	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.3	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	95.1	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.7	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	88.8	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.2	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	74.5	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	77.1	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	41.0	123
EP074D: Fumigants (QCLot: 5689353)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	108	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	108	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	98.9	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	100	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	108	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689353)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	87.3	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	93.6	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	101	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	91.5	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689353) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	101	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	103	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	102	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	105	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	105	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	106	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	109	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	109	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	104	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	105	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	106	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	110	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	104	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	111	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	108	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	103	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	95.6	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	105	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	112	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	113	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	100	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	99.6	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	114	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5689353)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	110	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	109	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	110	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	109	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	110	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	110	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	110	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	107	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	107	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5689353)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	108	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	104	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	96.9	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	94.9	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5689983)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	93.9	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	95.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.7	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	92.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	85.5	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	91.7	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	95.1	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	89.3	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	83.9	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	83.7	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	47.8	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689983)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	90.9	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.1	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	91.6	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	95.0	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	94.0	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	94.9	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.7	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.8	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.9	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.5	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	100	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.7	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689983) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	99.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689352)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689984)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	91.2	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	99.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	106	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689352)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	105	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689984)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.0	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	101	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	94.2	63.0	131
EP080: BTEXN (QCLot: 5689352)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	105	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	104	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	108	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	113	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	111	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	111	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5691296)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.8	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.8	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.3	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.6	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.7	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5694969)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.1	77.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5688692)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.4	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	67.3	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	63.3	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	73.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	83.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	84.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	77.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	75.3	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	82.7	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	74.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	62.4	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	72.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	64.8	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5688693)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	82.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689671)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	84.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5688693)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	65.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.1	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	83.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689671)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.2	75.0	127
EP080: BTEXN (QCLot: 5689671)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	83.4	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	84.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	88.5	73.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5689671) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	81.9	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	84.8	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5693083)							
ES2409337-010	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	100	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	86.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	121	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	97.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	88.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5693084)							
ES2409603-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.0	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5689986)							
ES2409765-006	R-BH16A_0.4-0.6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	91.2	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689985)							
ES2409765-006	R-BH16A_0.4-0.6	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	84.7	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	78.1	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	81.8	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	83.2	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	76.1	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	75.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5689985)							
ES2409765-006	R-BH16A_0.4-0.6	EP068: Diazinon	333-41-5	0.5 mg/kg	76.4	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	77.0	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	74.7	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	83.1	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	81.2	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689353)							
ES2409765-008	R-BH37_0.9-1.1	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	86.3	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689353) - continued							
ES2409765-008	R-BH37_0.9-1.1	EP074: Trichloroethene	79-01-6	2.5 mg/kg	95.3	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5689353)							
ES2409765-008	R-BH37_0.9-1.1	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5689983)							
ES2409765-006	R-BH16A_0.4-0.6	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.0	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	81.6	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	83.4	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.6	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	66.0	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689983)							
ES2409765-006	R-BH16A_0.4-0.6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.6	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689352)							
ES2409765-001	QC100_20240322	EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689984)							
ES2409765-006	R-BH16A_0.4-0.6	EP071: C10 - C14 Fraction	----	480 mg/kg	94.9	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	98.4	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	105	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689352)							
ES2409765-001	QC100_20240322	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	105	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689984)							
ES2409765-006	R-BH16A_0.4-0.6	EP071: >C10 - C16 Fraction	----	860 mg/kg	99.7	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	102	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	77.7	52.0	132
EP080: BTEXN (QCLot: 5689352)							
ES2409765-001	QC100_20240322	EP080: Benzene	71-43-2	2.5 mg/kg	97.7	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	104	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	105	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	115	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	115	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.0	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5691296)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5691296) - continued							
ES2409549-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.0	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	93.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	101	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	102	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	94.9	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5694969)							
ES2409483-017	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	80.7	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689671)							
ES2409610-006	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	87.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689671)							
ES2409610-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.7	70.0	130
EP080: BTEXN (QCLot: 5689671)							
ES2409610-006	Anonymous	EP080: Benzene	71-43-2	25 µg/L	106	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	97.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	108	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	112	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	109	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	110	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409765**	Page	: 1 of 8
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ----	No. of samples received	: 13
Order number	: 60709736 - CDRL 1100	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) QC100_20240322, QC200_20240322, R-BH16A_0.4-0.6, R-BH37_0.9-1.1, R-BH37_0.4-0.6	**22-Mar-2024**	**----**	----	----	**28-Mar-2024**	05-Apr-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH16A_0.4-06	**22-Mar-2024**	**----**	----	----	**08-Apr-2024**	18-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R-BH37_0.0-0.2	**22-Mar-2024**	**----**	----	----	**28-Mar-2024**	18-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) QC100_20240322, QC200_20240322, R-BH16A_0.4-0.6, R-BH37_0.9-1.1, R-BH37_0.4-0.6	**22-Mar-2024**	**28-Mar-2024**	18-Sep-2024	✓	**28-Mar-2024**	18-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) QC100_20240322, QC200_20240322, R-BH16A_0.4-0.6, R-BH37_0.9-1.1, R-BH37_0.4-0.6	**22-Mar-2024**	**28-Mar-2024**	19-Apr-2024	✓	**02-Apr-2024**	19-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
R-BH16A_0.4-0.6		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	06-May-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
R-BH16A_0.4-0.6		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	06-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
R-BH16A_0.4-0.6		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	06-May-2024	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
R-BH37_0.9-1.1,	R-BH37_0.4-0.6	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**27-Mar-2024**	29-Mar-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
R-BH37_0.9-1.1,	R-BH37_0.4-0.6	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**27-Mar-2024**	29-Mar-2024	✓
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
R-BH37_0.9-1.1,	R-BH37_0.4-0.6	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**27-Mar-2024**	29-Mar-2024	✓
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
R-BH37_0.9-1.1,	R-BH37_0.4-0.6	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**27-Mar-2024**	29-Mar-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
R-BH16A_0.4-0.6, R-BH37_0.4-0.6	R-BH37_0.9-1.1,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
QC100_20240322,	QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM))								
R-BH16A_0.4-0.6, R-BH37_0.4-0.6	R-BH37_0.9-1.1,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
QC100_20240322, R-BH16A_0.4-0.6, R-BH37_0.4-0.6	QC200_20240322, R-BH37_0.9-1.1,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
QC100_20240322, R-BH16A_0.4-0.6, R-BH37_0.4-0.6	QC200_20240322, R-BH37_0.9-1.1,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QC100_20240322, QC200_20240322, R-BH16A_0.4-0.6, R-BH37_0.9-1.1, R-BH37_0.4-0.6	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	18-Sep-2024	✓	**27-Mar-2024**	18-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240322	**22-Mar-2024**	**----**	----	----	**02-Apr-2024**	19-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409765**		
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736 - CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 25-Mar-2024 20:20	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 08-Apr-2024	Scheduled Reporting Date	: **08-Apr-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 4.2'C, 2.1'C, 1.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN which indicates the new scheduled release date for this work order.
- **The bag was not received for sample 6, 20240322-R-BH16A-0.4-0.6, unable to conduct Asbestos for the sample.**
- **Unable to conduct Asbestos for sample #6 due to bag was not received.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2409765-012 : [22-Mar-2024] : R-BH37_0.4-0.6 - Received as 20240322-R-BH37-0.4

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2409765-001	22-Mar-2024 00:00	QC100_20240322		✓					✓
ES2409765-002	22-Mar-2024 00:00	QC200_20240322		✓					✓
ES2409765-003	22-Mar-2024 00:00	R-BH16A_0-0.2	✓						
ES2409765-004	22-Mar-2024 00:00	R-BH16A_1.3-1.5	✓						
ES2409765-005	22-Mar-2024 00:00	R-BH16A_0.9-1.0	✓						
ES2409765-006	22-Mar-2024 00:00	R-BH16A_0.4-0.6		✓			✓		
ES2409765-007	22-Mar-2024 00:00	R-BH37_1.4-1.5	✓						
ES2409765-008	22-Mar-2024 00:00	R-BH37_0.9-1.1		✓	✓	✓		✓	
ES2409765-010	22-Mar-2024 00:00	R-BH37_0.4-0.6		✓	✓	✓		✓	
ES2409765-012	22-Mar-2024 00:00	R-BH37_0.4-0.6 Rece...	✓						

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA200 Asbestos Identification in Soils -
ES2409765-009	22-Mar-2024 00:00	R-BH37_0.0-0.2	✓
ES2409765-011	22-Mar-2024 00:00	R-BH16A_0.4-06	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2409765-013	22-Mar-2024 00:00	QC300_20240322	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): ~~Standard TAT~~ 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	ON HOLD	ASBESTOS (AQIS/NEPM)	OCP/OPP/PCB	TRH/BTEX/PAH/Phenols	CHCs	PHENOLS	HOLD
1	QC100-20240322	S	22/3/24		JAR x1		X			X			
2	QC200-20240322	S	22/3/24		JAR x1		X			X			
3	20240322-R-BH16A-0-0.2	S	22/3/24		JAR x1, BAG x1		X						X
4	20240322-R-BH16A-13-1.5	S	22/3/24		JAR x1, BAG x1		X						X
5	20240322-R-BH16A-0.9-1.0	S	22/3/24		JAR x1, BAG x1		X						X
6	20240322-R-BH16A-0.4-0.6	S	22/3/24		JAR x1		X	X	X	X		X	
7	20240322-R-BH37-1.4-1.5	S	22/3/24		JAR x1		X						X
8	20240322-R-BH37-0.9-1.1	S	22/3/24		JAR x1, BAG x1		X			X	X	X	
9	20240322-R-BH37-0-0.2	S	22/3/24		JAR x1, BAG x1		X	X					
10	20240322-R-BH37-0.4-0.6	S	22/3/24		JAR x1		X			X	X	X	
11	20240322-R-BH16A-0.4-0.5	S	22/3/24		BAG x1		X						X
NR	20240322-R-BH37-1.4-1.5	S	22/3/24		BAG x1		X						X
12	20240322-R-BH37-0.4-0.6	S	22/3/24		BAG x1		X						X
13	QC300-20240322	W	22/3/24		4 vials		X			X			

received as 20240322-R-BH37-0.4-

* PLEASE PRIORITISE ANALYSIS CLOSE TO HOLDING TIME

TAT

Organised By / Date:
Discussed By / Date:
Courier:
ES2409765
Sent by COC Original Sheet

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 25/3/24	Name:	Date:	Name: Wes	Date: 25/3/24	Con' Note No:
Of: Aecom	Time: AM	Of:	Time:	Of: AECOM	Time: 1020	Transport Co:

Environmental Division Sydney
Work Order Reference
ES2409765

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

ES2409765

CERTIFICATE OF ANALYSIS

Work Order	: **ES2409806**	Page	: 1 of 21
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024 20:20
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:10
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 13		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of sample QC100_20240324 and QC200_20240324 have been confirmed by re-extraction and re-analysis.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-007. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.

- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	14.7	14.7	16.6	14.7
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Synthetic Mineral Fibre	----	-	--		No	----	----	----	----
Organic Fibre	----	-	--		No	----	----	----	----
Sample weight (dry)	----	0.01	g		157	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		B.SCHRADER	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	8	12	8	12
Cadmium	7440-43-9	1	mg/kg		----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		----	19	32	28	30
Copper	7440-50-8	5	mg/kg		----	61	31	<5	5
Lead	7439-92-1	5	mg/kg		----	73	71	11	16
Nickel	7440-02-0	2	mg/kg		----	4	4	<2	2
Zinc	7440-66-6	5	mg/kg		----	151	105	6	15
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	<0.1	<0.1	<0.1
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		----	----	<20	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	<5	----	----
Chloromethane	74-87-3	5	mg/kg		----	----	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		----	----	<5	----	----
Bromomethane	74-83-9	5	mg/kg		----	----	<5	----	----
Chloroethane	75-00-3	5	mg/kg		----	----	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	**0.6**	**0.8**	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	**2.9**	**4.2**	<0.5	**0.8**
Anthracene	120-12-7	0.5	mg/kg		----	**0.9**	**1.3**	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	**8.2**	**10.2**	<0.5	**2.6**
Pyrene	129-00-0	0.5	mg/kg		----	**7.6**	**9.4**	<0.5	**2.3**
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	**3.4**	**4.2**	<0.5	**1.2**
Chrysene	218-01-9	0.5	mg/kg		----	**3.4**	**4.1**	<0.5	**1.2**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	**4.6**	**5.4**	<0.5	**1.5**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	**2.0**	**2.3**	<0.5	**0.7**
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	**4.1**	**4.7**	<0.5	**1.3**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	**2.4**	**2.7**	<0.5	**0.7**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	**0.6**	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	**3.0**	**3.3**	<0.5	**0.8**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	**43.1**	**53.2**	<0.5	**13.1**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	**5.4**	**6.8**	<0.5	**1.7**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**5.6**	**6.8**	**0.6**	**2.0**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**5.9**	**6.8**	**1.2**	**2.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	**140**	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		----	<100	**140**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	**280**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	**170**	**240**	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	**170**	**240**	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	<0.2	<0.2
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	----	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	----	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	----	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	----	<0.001	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	----	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	----	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	----	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	----	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	----	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	----	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	----	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	----	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	----	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	----	<0.0002	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	97.9	----	----
Toluene-D8	2037-26-5	0.5	%		----	----	100	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	106	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	118	97.8	96.6	90.6
2-Chlorophenol-D4	93951-73-6	0.5	%		----	86.2	86.3	85.8	79.5
2.4.6-Tribromophenol	118-79-6	0.5	%		----	32.9	91.8	88.3	87.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	72.8	87.0	86.2	81.9
Anthracene-d10	1719-06-8	0.5	%		----	84.0	88.8	87.1	86.0
4-Terphenyl-d14	1718-51-0	0.5	%		----	80.0	88.2	87.7	86.0
EP080S: TPH(V)/BTEX Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH26/GW26_0.4-0.5	BH26/GW26_1.1-1.2	BH26/GW26_1.5-1.6	BH26/GW26_3.4-3.5	BH26/GW26_0.4-0.5
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00	24-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-001	ES2409806-003	ES2409806-004	ES2409806-006	ES2409806-007
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	77.5	101	98.2	81.0
Toluene-D8	2037-26-5	0.2	%		----	84.8	110	107	85.2
4-Bromofluorobenzene	460-00-4	0.2	%		----	95.7	118	123	96.1
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	----	100.0	----	----
13C8-PFOA	----	0.0002	%		----	----	106	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**15.5**	**16.0**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**9**	**7**	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		**22**	**19**	----	----	----
Copper	7440-50-8	5	mg/kg		**48**	**36**	----	----	----
Lead	7439-92-1	5	mg/kg		**93**	**82**	----	----	----
Nickel	7440-02-0	2	mg/kg		**4**	**3**	----	----	----
Zinc	7440-66-6	5	mg/kg		**155**	**144**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg		<20	<20	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	----	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
			Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		**0.6**	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**4.2**	**2.2**	----	----	----
Anthracene	120-12-7	0.5	mg/kg		**1.2**	**0.6**	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**10.5**	**7.1**	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**9.6**	**6.7**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**4.0**	**2.8**	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**4.0**	**2.8**	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**5.3**	**3.8**	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**2.4**	**1.7**	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**4.7**	**3.5**	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**2.9**	**2.1**	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**0.6**	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**3.4**	**2.6**	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**53.4**	**35.9**	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**6.8**	**4.6**	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**6.8**	**4.8**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**6.8**	**5.1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**110**	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		**120**	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		**230**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**200**	**180**	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**200**	**180**	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	**3.7**	**3.7**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	**4.1**	**4.3**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	**4.6**	**4.7**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	**2.1**	**2.2**
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	**6.7**	**6.9**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	**14.5**	**14.9**
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		**95.8**	**97.8**	----	----	----
Toluene-D8	2037-26-5	0.5	%		**103**	**97.5**	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		**105**	**104**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**94.7**	**94.6**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.7**	**85.8**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**90.3**	**90.0**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**86.0**	**85.2**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**87.3**	**86.7**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**86.4**	**85.7**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.9**	**101**	**102**	**98.7**	**98.9**
Toluene-D8	2037-26-5	0.2	%		**112**	**106**	**107**	**104**	**103**
4-Bromofluorobenzene	460-00-4	0.2	%		**118**	**116**	**114**	**106**	**104**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**96.1**	**97.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240324	QC200_20240324	TRIP BLANK	TRIP SPIKE	TRIP SPIKE CONTROL 16
				Sampling date / time	24-Mar-2024 00:00	24-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409806-008	ES2409806-009	ES2409806-011	ES2409806-012	ES2409806-013
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	0.0002	%		**97.4**	**102**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240324	----	----	----	----
				Sampling date / time	24-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409806-010	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240324	----	----	----	----
				Sampling date / time	24-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409806-010	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**20.2**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240324	----	----	----	----
				Sampling date / time	24-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409806-010	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**31.3**	**----**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**24.4**	**----**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**58.8**	**----**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**68.3**	**----**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**71.5**	**----**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**115**	**----**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**114**	**----**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**113**	**----**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH26/GW26_0.4-0.5 - 24-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2409806**	Page	: 1 of 18
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 13		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5693753)									
ES2409637-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	17	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	26.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	93	84	9.6	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	29	31	4.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	145	164	12.4	0% - 20%
ES2409806-006	BH26/GW26_3.4-3.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	28	32	11.5	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	10	12.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	6	10	48.3	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5693756)									
ES2409558-003	Anonymous	EA055: Moisture Content	----	0.1	%	38.2	38.0	0.5	0% - 20%
ES2409800-002	Anonymous	EA055: Moisture Content	----	0.1	%	16.4	16.2	1.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5693757)									
ES2409906-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	21.2	20.0	5.9	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5693750)									
ES2409705-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2409558-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EK055: Ammonia as N (QC Lot: 5701766)									
ES2409806-004	BH26/GW26_1.5-1.6	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	No Limit
EP074D: Fumigants (QC Lot: 5689605)									
ES2409806-004	BH26/GW26_1.5-1.6	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5689605)									
ES2409806-004	BH26/GW26_1.5-1.6	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5689605)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5689605) - continued									
ES2409806-004	BH26/GW26_1.5-1.6	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5689605)									
ES2409806-004	BH26/GW26_1.5-1.6	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5689963)									
ES2409806-003	BH26/GW26_1.1-1.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2409869-006	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5689963) - continued									
ES2409869-006	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689963)									
ES2409806-003	BH26/GW26_1.1-1.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	2.9	2.7	7.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.9	0.7	27.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	8.2	8.3	1.2	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	7.6	7.7	1.8	0% - 50%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	3.4	3.2	5.2	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	3.4	3.3	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	4.6	4.6	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	2.0	1.8	11.5	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	4.1	4.1	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	2.4	2.4	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	3.0	3.0	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	43.1	42.3	1.9	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	5.4	5.4	0.0	0% - 50%
ES2409869-006	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.2	1.4	10.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.2	1.3	9.1	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.6	0.7	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689963) - continued									
ES2409869-006	Anonymous	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	4.1	5.5	29.2	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689603)									
ES2409806-003	BH26/GW26_1.1-1.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409869-022	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689604)									
ES2409806-004	BH26/GW26_1.5-1.6	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689964)									
ES2409806-003	BH26/GW26_1.1-1.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409869-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689603)									
ES2409806-003	BH26/GW26_1.1-1.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409869-022	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689604)									
ES2409806-004	BH26/GW26_1.5-1.6	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689964)									
ES2409806-003	BH26/GW26_1.1-1.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	170	160	8.7	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409869-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5689603)									
ES2409806-003	BH26/GW26_1.1-1.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5689603) - continued									
ES2409869-022	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5689604)									
ES2409806-004	BH26/GW26_1.5-1.6	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5696962)									
ES2409666-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0036	0.0035	2.9	0% - 50%
ES2410249-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5696962)									
ES2409666-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2410249-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5696962)									
ES2409666-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5696962) - continued									
ES2409666-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2410249-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5696953)									
ES2409547-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.014	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.008	12.7	No Limit
ES2409784-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001 (0.0010)*	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001 (0.010) *	mg/L	0.111	0.110	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001 (0.010) *	mg/L	0.423	0.428	1.2	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001 (0.010) *	mg/L	0.018	0.018	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001 (0.010) *	mg/L	0.184	0.181	1.8	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005 (0.050) *	mg/L	0.436	0.423	3.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5696963)									
ES2409806-010	QC300_20240324	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EW2401396-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2409689-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2409689-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit
EP080: BTEXN (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2409689-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5693753)								
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	86.6	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	118	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	103	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	96.3	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	99.0	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	92.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5693750)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	92.5	70.0	125
EK055: Ammonia as N (QCLot: 5701766)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	250 mg/kg	98.0	84.0	104
EP074D: Fumigants (QCLot: 5689605)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	83.1	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	84.2	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	81.4	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	80.6	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	85.2	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689605)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	53.1	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	73.2	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	79.7	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	86.5	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	80.3	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	81.7	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	76.6	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	63.5	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	82.0	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	82.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	84.2	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	80.4	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	78.3	65.0	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689605) - continued								
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	76.0	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	89.3	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	82.3	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	87.9	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	89.6	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	88.9	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.6	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	86.5	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	81.7	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	83.2	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.3	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	91.2	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	68.9	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.5	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	79.4	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5689605)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	86.2	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	81.9	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	84.1	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	82.4	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	86.1	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	82.5	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	82.8	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	82.6	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	88.1	52.0	122
EP074G: Trihalomethanes (QCLot: 5689605)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	85.1	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	82.0	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	83.3	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	82.2	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	95.6	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	71.0	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963) - continued								
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.4	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	86.0	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	93.1	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	86.7	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	99.5	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	91.0	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.2	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	55.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689963)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.9	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.0	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	94.4	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.2	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	108	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	95.7	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689603)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.0	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689604)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.4	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689964)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	89.2	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.4	77.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689964) - continued								
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.9	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689603)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689604)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	88.0	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689964)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	110	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.5	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	83.7	63.0	131
EP080: BTEXN (QCLot: 5689603)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.9	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.8	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	97.5	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.6	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.2	78.8	122
EP080: BTEXN (QCLot: 5689604)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.5	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.5	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	94.7	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	101	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	110	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	98.1	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5696962)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.4	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.1	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5696962)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	84.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.9	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.1	69.0	133

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5696962)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.4	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	90.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	87.6	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	81.2	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5696953)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	88.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.7	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	87.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.5	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5696963)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5688692)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.4	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	67.3	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	63.3	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	73.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	83.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	84.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	77.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.5	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	75.3	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	82.7	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	74.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	62.4	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	72.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	64.8	59.1	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5688693)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	82.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689688)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5688693)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	65.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.1	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	83.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689688)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	78.8	75.0	127
EP080: BTEXN (QCLot: 5689688)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.9	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	94.3	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.6	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.9	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	100	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5693753)							
ES2409637-001	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	95.7	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	100.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	99.1	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5693750)							
ES2409558-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.0	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055: Ammonia as N (QCLot: 5701766)							
ES2409806-004	BH26/GW26_1.5-1.6	EK055: Ammonia as N	7664-41-7	200 mg/kg	90.0	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5689605)							
ES2409806-004	BH26/GW26_1.5-1.6	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	83.9	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	87.8	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5689605)							
ES2409806-004	BH26/GW26_1.5-1.6	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	92.0	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963)							
ES2409869-006	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.1	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	83.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689963)							
ES2409869-006	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689603)							
ES2409806-003	BH26/GW26_1.1-1.2	EP080: C6 - C9 Fraction	----	16.25 mg/kg	72.0	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689604)							
ES2409806-004	BH26/GW26_1.5-1.6	EP080: C6 - C9 Fraction	----	16.25 mg/kg	82.6	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689964)							
ES2409869-006	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	102	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	95.5	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	110	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689603)							
ES2409806-003	BH26/GW26_1.1-1.2	EP080: C6 - C10 Fraction	C6_C10	18.75 mg/kg	76.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689604)							
ES2409806-004	BH26/GW26_1.5-1.6	EP080: C6 - C10 Fraction	C6_C10	18.75 mg/kg	79.0	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689964)							
ES2409869-006	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	95.1	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	103	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	104	52.0	132
EP080: BTEXN (QCLot: 5689603)							
ES2409806-003	BH26/GW26_1.1-1.2	EP080: Benzene	71-43-2	1.25 mg/kg	85.8	62.1	122
		EP080: Toluene	108-88-3	1.25 mg/kg	104	66.6	119
		EP080: Ethylbenzene	100-41-4	1.25 mg/kg	104	67.4	123

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP080: BTEXN (QCLot: 5689603) - continued							
ES2409806-003	BH26/GW26_1.1-1.2	EP080: meta- & para-Xylene	108-38-3 106-42-3	1.25 mg/kg	113	66.4	121
		EP080: ortho-Xylene	95-47-6	1.25 mg/kg	114	70.7	121
		EP080: Naphthalene	91-20-3	1.25 mg/kg	105	61.1	115
EP080: BTEXN (QCLot: 5689604)							
ES2409806-004	BH26/GW26_1.5-1.6	EP080: Benzene	71-43-2	1.25 mg/kg	104	62.1	122
		EP080: Toluene	108-88-3	1.25 mg/kg	106	66.6	119
		EP080: Ethylbenzene	100-41-4	1.25 mg/kg	108	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	1.25 mg/kg	105	66.4	121
		EP080: ortho-Xylene	95-47-6	1.25 mg/kg	108	70.7	121
		EP080: Naphthalene	91-20-3	1.25 mg/kg	99.4	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5696962)							
ES2409666-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	93.0	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	92.3	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	118	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5696962)							
ES2409666-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	93.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	109	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	98.2	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	102	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.3	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5696962)							
ES2409666-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	78.2	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	89.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	112	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	123	69.2	143

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5696953)							
ES2409547-002	Anonymous	EG020A-T: Arsenic	7440-38-2	10 mg/L	109	70.0	130
		EG020A-T: Cadmium	7440-43-9	2.5 mg/L	97.7	70.0	130
		EG020A-T: Chromium	7440-47-3	10 mg/L	98.1	70.0	130
		EG020A-T: Copper	7440-50-8	10 mg/L	101	70.0	130
		EG020A-T: Lead	7439-92-1	10 mg/L	98.0	70.0	130
		EG020A-T: Nickel	7440-02-0	10 mg/L	99.1	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5696953) - continued							
ES2409547-002	Anonymous	EG020A-T: Zinc	7440-66-6	10 mg/L	97.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5696963)							
ES2409705-005	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	84.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.1	70.0	130
EP080: BTEXN (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	92.9	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	90.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.6	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.2	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409806**	Page	: 1 of 9
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 25-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas	No. of samples received	: 13
Order number	: 60709736 - CDRL 1100	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES2409806-003	BH26/GW26_1.1-1.2	**2.4.6-Tribromophenol**	118-79-6	32.9 %	40.0-138 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH26/GW26_1.1-1.2,	BH26/GW26_1.5-1.6,	**24-Mar-2024**	**----**	----	**----**	**28-Mar-2024**	07-Apr-2024	✓
BH26/GW26_3.4-3.5,	BH26/GW26_0.4-0.5,							
QC100_20240324,	QC200_20240324							
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
BH26/GW26_0.4-0.5		**24-Mar-2024**	**----**	----	**----**	**28-Mar-2024**	20-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH26/GW26_1.1-1.2,	BH26/GW26_1.5-1.6,	**24-Mar-2024**	**28-Mar-2024**	20-Sep-2024	✓	**02-Apr-2024**	20-Sep-2024	✓
BH26/GW26_3.4-3.5,	BH26/GW26_0.4-0.5,							
QC100_20240324,	QC200_20240324							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH26/GW26_1.1-1.2, BH26/GW26_1.5-1.6, BH26/GW26_3.4-3.5, BH26/GW26_0.4-0.5, QC100_20240324, QC200_20240324	**24-Mar-2024**	**28-Mar-2024**	21-Apr-2024	✓	**02-Apr-2024**	21-Apr-2024	✓
EK055: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055)							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**----**	----	----	**03-Apr-2024**	21-Apr-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	31-Mar-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH26/GW26_1.5-1.6, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH26/GW26_1.1-1.2	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**02-Apr-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH26/GW26_1.5-1.6, BH26/GW26_3.4-3.5, BH26/GW26_0.4-0.5, QC100_20240324, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK		**18-Mar-2024**	**27-Mar-2024**	01-Apr-2024	✓	**28-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.1-1.2, BH26/GW26_0.4-0.5	BH26/GW26_3.4-3.5,	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**27-Mar-2024**	07-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.1-1.2, BH26/GW26_3.4-3.5, QC100_20240324,	BH26/GW26_1.5-1.6, BH26/GW26_0.4-0.5, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.1-1.2, BH26/GW26_0.4-0.5	BH26/GW26_3.4-3.5,	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**27-Mar-2024**	07-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.1-1.2, BH26/GW26_3.4-3.5, QC100_20240324,	BH26/GW26_1.5-1.6, BH26/GW26_0.4-0.5, QC200_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
TRIP SPIKE,	TRIP SPIKE CONTROL 16	**18-Mar-2024**	**27-Mar-2024**	01-Apr-2024	✓	**28-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.1-1.2, BH26/GW26_0.4-0.5	BH26/GW26_3.4-3.5,	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**27-Mar-2024**	07-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH26/GW26_1.5-1.6, QC200_20240324	QC100_20240324,	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH26/GW26_1.5-1.6, QC200_20240324	QC100_20240324,	**24-Mar-2024**	**02-Apr-2024**	20-Sep-2024	✓	**03-Apr-2024**	12-May-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH26/GW26_1.5-1.6, QC200_20240324	QC100_20240324,	**24-Mar-2024**	**02-Apr-2024**	20-Sep-2024	✓	**03-Apr-2024**	12-May-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH26/GW26_1.5-1.6, QC200_20240324	QC100_20240324,	**24-Mar-2024**	**02-Apr-2024**	20-Sep-2024	✓	**03-Apr-2024**	12-May-2024	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH26/GW26_1.5-1.6, QC200_20240324	QC100_20240324,	**24-Mar-2024**	**02-Apr-2024**	20-Sep-2024	✓	**03-Apr-2024**	12-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240324	**24-Mar-2024**	**02-Apr-2024**	20-Sep-2024	✓	**02-Apr-2024**	20-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240324	**24-Mar-2024**	**----**	----	----	**03-Apr-2024**	21-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	31-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240324	**24-Mar-2024**	**27-Mar-2024**	07-Apr-2024	✓	**28-Mar-2024**	07-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Buchi Ammonia	EK055	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	25	**12.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	17	**11.76**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	25	**8.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH3 B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409806**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736 - CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 25-Mar-2024 20:20	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 03-Apr-2024	Scheduled Reporting Date	: **03-Apr-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 4.2'C, 2.1'C, 1.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Unable to conduct Asbestos for sample 7 due to bag was not received.**
- **28/03/24: This is an updated SRN which indicates the ID for samples #3 (BH26_1.1-1.2) and #4, BH26_1.5-1.6 have been amended. Sample #14 has been removed and added to sample #4.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2409806-013 : [18-Mar-2024] : TRIP SPIKE CONTROL 16

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-24 TRH/BTEXN/PAH + Phenols	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2409806-001	24-Mar-2024 00:00	BH26/GW26_0.4-0.5			✓				
ES2409806-002	24-Mar-2024 00:00	BH26/GW26_0.8-0.9	✓						
ES2409806-003	24-Mar-2024 00:00	BH26/GW26_1.1-1.2		✓					✓
ES2409806-004	24-Mar-2024 00:00	BH26/GW26_1.5-1.6		✓		✓	✓	✓	
ES2409806-005	24-Mar-2024 00:00	BH26/GW26_2.4-2.5	✓						
ES2409806-006	24-Mar-2024 00:00	BH26/GW26_3.4-3.5		✓					✓
ES2409806-007	24-Mar-2024 00:00	BH26/GW26_0.4-0.5		✓					✓
ES2409806-008	24-Mar-2024 00:00	QC100_20240324		✓		✓	✓	✓	
ES2409806-009	24-Mar-2024 00:00	QC200_20240324		✓		✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EK055 (solids) Ammonia as N	SOIL - EP071(V) TRH(V) Standard Limits of Reporting	SOIL - EP080 BTEXN	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)
ES2409806-004	24-Mar-2024 00:00	BH26/GW26_1.5-1.6	✓			✓
ES2409806-008	24-Mar-2024 00:00	QC100_20240324	✓			✓
ES2409806-009	24-Mar-2024 00:00	QC200_20240324	✓			✓
ES2409806-011	18-Mar-2024 00:00	TRIP BLANK		✓		
ES2409806-012	18-Mar-2024 00:00	TRIP SPIKE			✓	
ES2409806-013	18-Mar-2024 00:00	TRIP SPIKE CONTROL 16			✓	

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2409806-010	24-Mar-2024 00:00	QC300_20240324	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- Chromatogram (CHROM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Eric Serttas	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Asbestos (AFP)	TRH/BTEXN/ PAH/8 metals	PFAS (Short)	Ammonia	Phenols	CHC's	C6-C9	BTEXN					HOLD
1	BH26_0.4-0.5	S	24/3	PM	ZLB, J, PF	1,1,1	X												
2	-0.8-0.9																		
3	-1.1-1.2							X											
4	-1.5-1.6							X	X	X	X	X							
5	-2.4-2.5																		
6	-3.4-3.5							X											
7	BH26(B)_0.4-0.5				J	1	X	X											
8	QC100_20240324				J, PF			X	X	X	X	X							
9	QC200_20240324							X	X	X	X	X							
10	QC300_20240324	W			AG, P, V, PF	1,1,2,2		X											
11	TRIP BLANK	S	18.3.24 Lab prepared		J	1							X						
12	TRIP SPIKE		18.3.24			1							X	X					
13	TSC 16		18.3.24																
14	BH26 1.4-1.5		24.3.24		PFAS				(Subcon)										
	Received as BH26 1.2-1.3																		

Environmental Division Sydney
Work Order Reference
ES2409806

Telephone : +61-2-8784 8555

Analysis: Newcastle Asbestos #1
Received By / Date:
Relinquished By / Date:
Courier:
ES2409806
Attach By / Seal No:

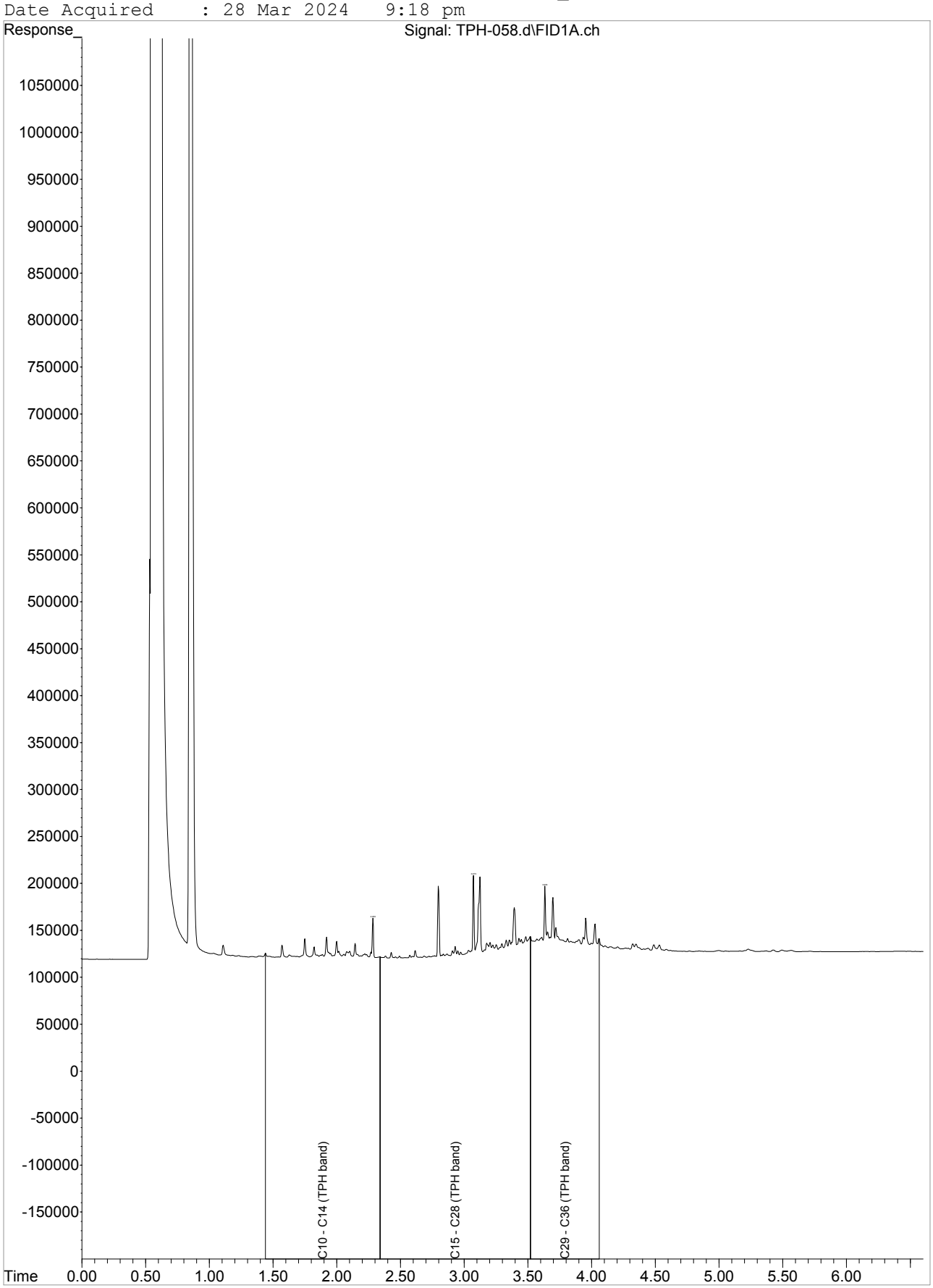
RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 25/3/24	Name:	Date:	Name: Chris	Date: 25/3/24	Con' Note No:
Of: Aecom	Time: AM	Of:	Time:	Of: AU	Time: 2020	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

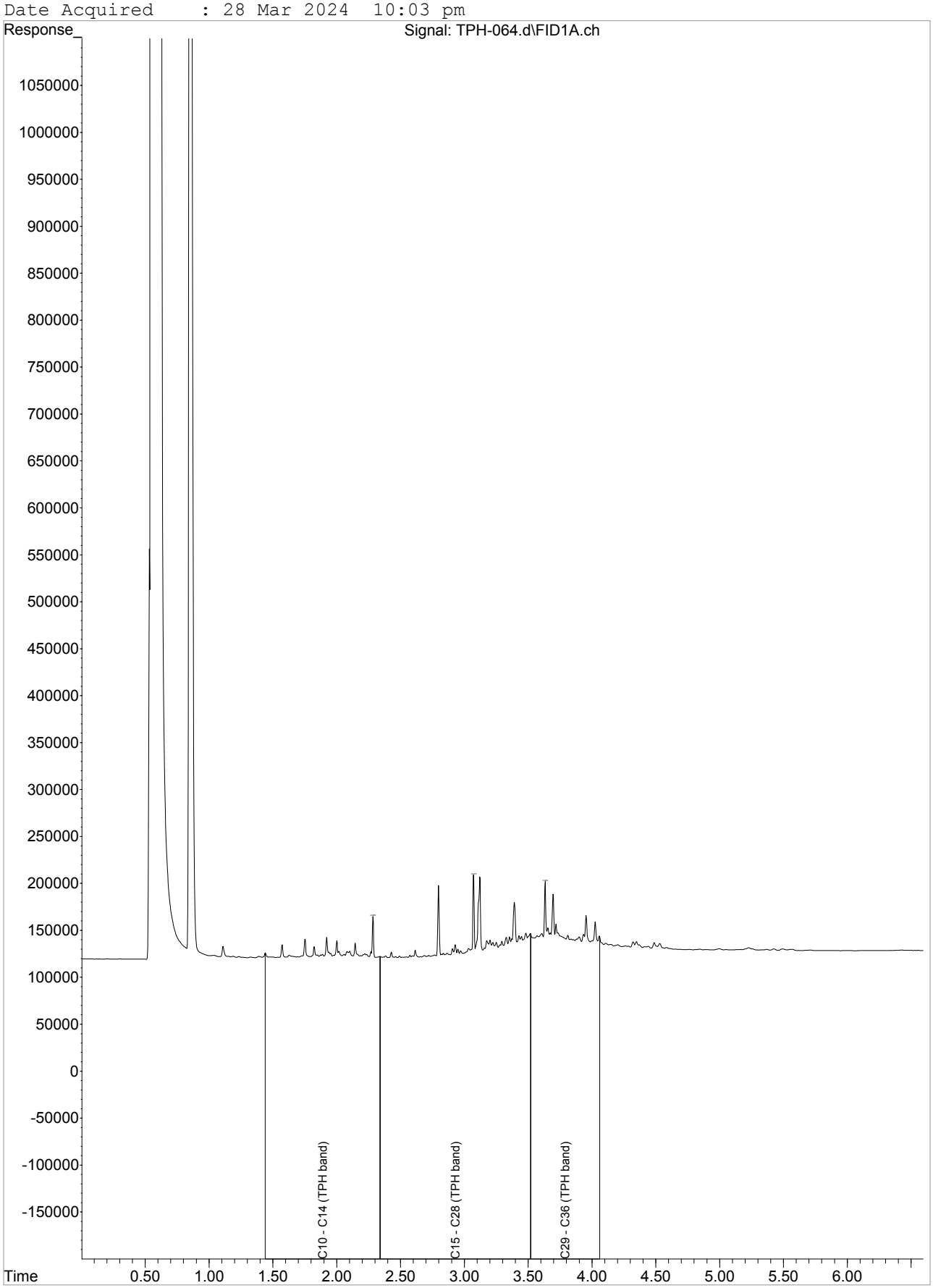
COC Page 1 of 1

ES2409806

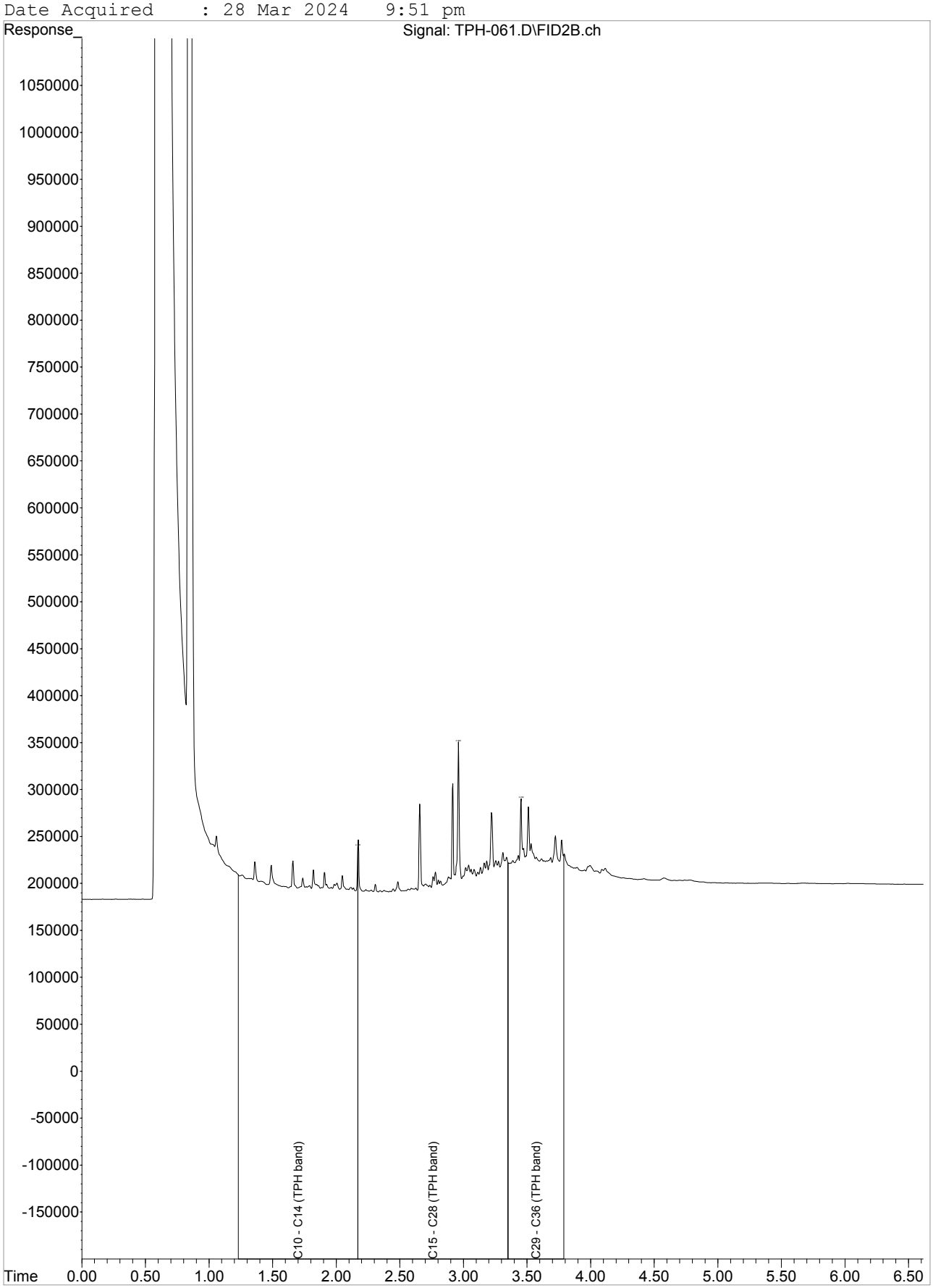
Fraction Scheme : Legacy
Data File : TPH-058.d
Laboratory Number: ES2409806-003
Sample ID : BH26_1.1-1.2 Received as BH26_1.2-1.3
Date Acquired : 28 Mar 2024 9:18 pm



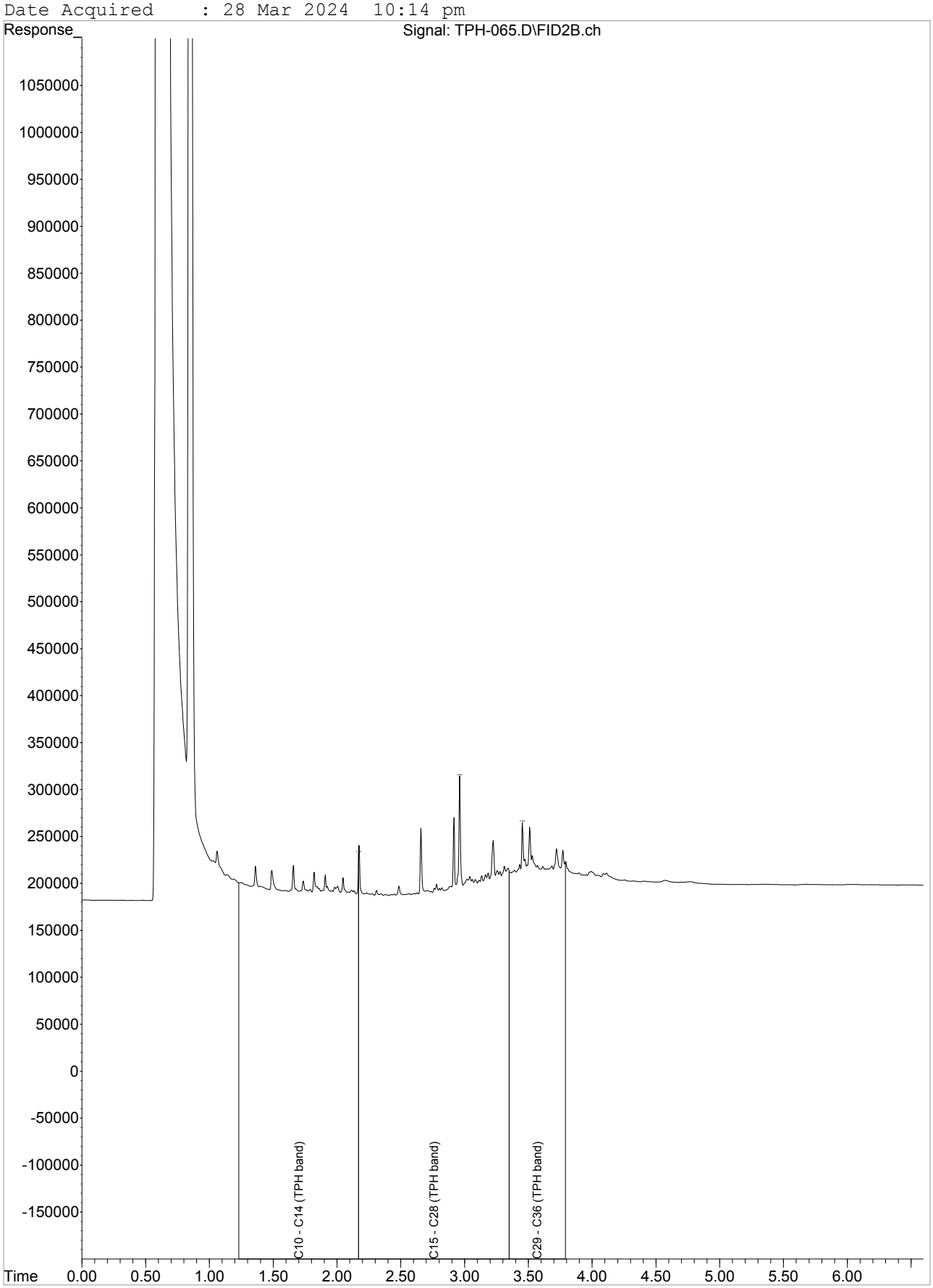
Fraction Scheme : Legacy
Data File : TPH-064.d
Laboratory Number: ES2409806-008
Sample ID : QC100_20240324
Date Acquired : 28 Mar 2024 10:03 pm



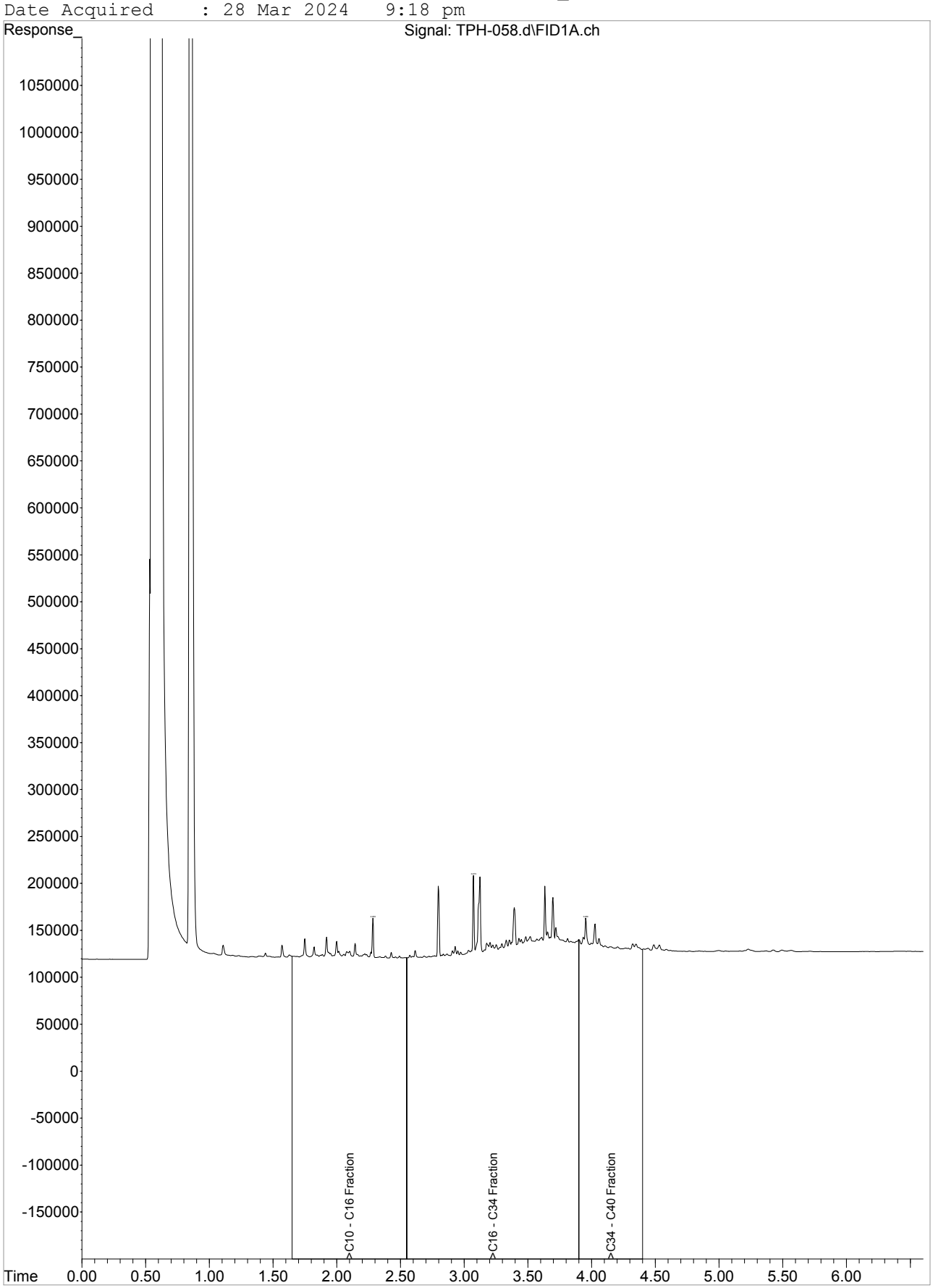
Fraction Scheme : Legacy
Data File : TPH-061.D
Laboratory Number: ES2409806-004
Sample ID : BH26_1.5-1.6
Date Acquired : 28 Mar 2024 9:51 pm



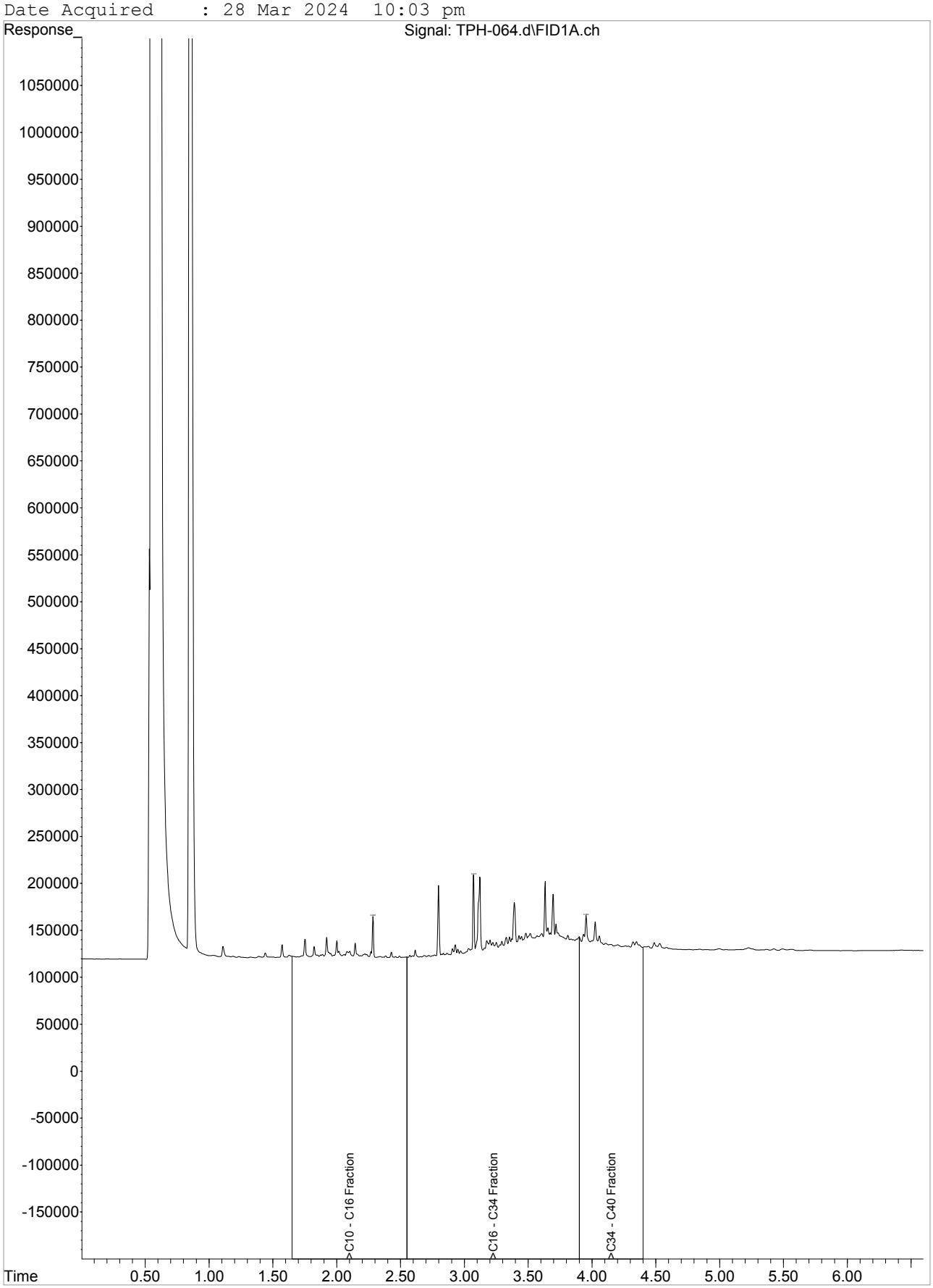
Fraction Scheme : Legacy
Data File : TPH-065.D
Laboratory Number: ES2409806-009
Sample ID : QC200_20240324
Date Acquired : 28 Mar 2024 10:14 pm



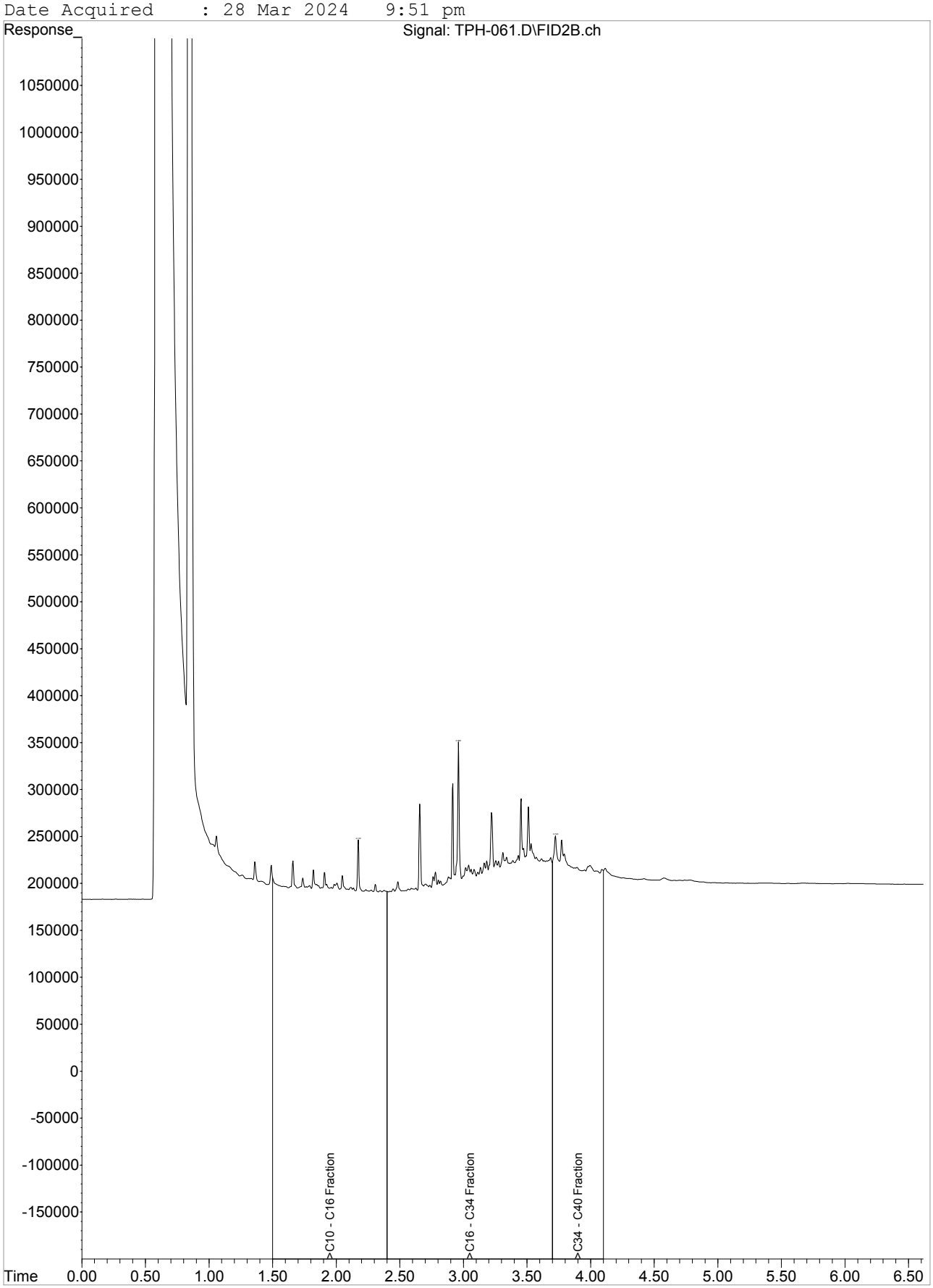
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Data File : TPH-058.d
Laboratory Number: ES2409806-003
Sample ID : BH26_1.1-1.2 Received as BH26_1.2-1.3
Date Acquired : 28 Mar 2024 9:18 pm



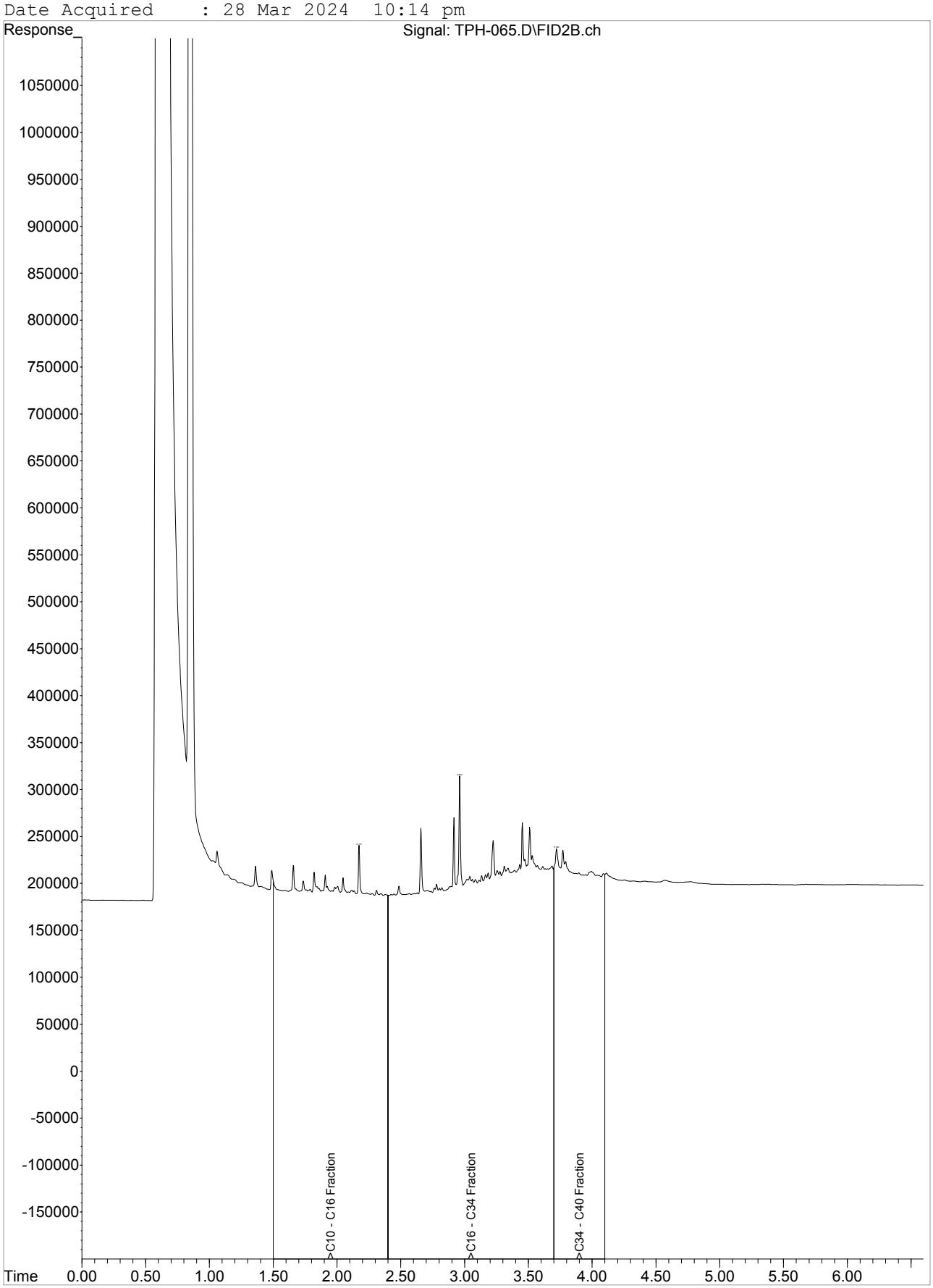
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Laboratory Number: ES2409806-008
Sample ID : QC100_20240324
Date Acquired : 28 Mar 2024 10:03 pm



Fraction Scheme : NEPM
Data File : TPH-061.D
Laboratory Number: ES2409806-004
Sample ID : BH26_1.5-1.6
Date Acquired : 28 Mar 2024 9:51 pm



Fraction Scheme : NEPM
Data File : TPH-065.D
Laboratory Number: ES2409806-009
Sample ID : QC200_20240324
Date Acquired : 28 Mar 2024 10:14 pm



CERTIFICATE OF ANALYSIS

Work Order	: **ES2409869**	Page	: 1 of 32
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 22-Mar-2024 17:20
Order number	: 60709736	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:17
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 46		
No. of samples analysed	: 23		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of samples QC100_20240322 and QC200_20240322 have been confirmed by re-extraction and re-analysis.
- Amendment (22/08/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 21/08/2024, for samples 022 & 032. All analysis results are as per the previous report.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001, 003-004, 007-008, 015, 018, 022-024, 026-029, 030-034. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.

- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
			Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	6.9	10.3	----	6.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	No	----
Asbestos (Trace)	1332-21-4	-	-	No	----	----	No	----
Asbestos Type	1332-21-4	-	--	-	----	----	-	----
Synthetic Mineral Fibre	----	-	--	No	----	----	No	----
Organic Fibre	----	-	--	No	----	----	No	----
Sample weight (dry)	----	0.01	g	540	----	----	237	----
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	----	B.SCHRADER	----
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	----	45	9	----	17
Arsenic	7440-38-2	5	mg/kg	----	7	6	----	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	<1
Chromium	7440-47-3	2	mg/kg	----	8	15	----	5
Copper	7440-50-8	5	mg/kg	----	<5	<5	----	7
Nickel	7440-02-0	2	mg/kg	----	<2	2	----	2
Zinc	7440-66-6	5	mg/kg	----	27	12	----	31
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
				Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	----	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	----	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		----	----	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	----	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	----	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
				Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	----	<0.2
Malathion	121-75-5	0.05	mg/kg		----	----	----	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	----	----	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	----	<0.05
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	<0.05
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	<2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
				Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	<0.5	----	**0.5**
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	<0.5	----	**1.2**
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	<0.5	----	**1.2**
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	<0.5	----	**0.6**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	<0.5	----	**0.6**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	<0.5	<0.5	----	**4.1**
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	<0.5	<0.5	----	**0.7**
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	**0.6**	**0.6**	----	**1.0**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	**1.2**	**1.2**	----	**1.3**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
				Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	**84.2**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	**104**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	**98.0**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**97.8**	**95.9**	----	**101**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**89.4**	**85.7**	----	**89.0**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**92.2**	**92.2**	----	**96.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP03_0.0-0.12	R_TP03_0.55-1.3	R_TP03_1.30-2.0	R_TP06_0.0-0.1	R_TP06_0.3-0.5
				Sampling date / time	20-Mar-2024 00:00	20-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-001	ES2409869-003	ES2409869-004	ES2409869-005	ES2409869-006
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**89.1**	**88.0**	----	**90.1**
Anthracene-d10	1719-06-8	0.5	%		----	**90.9**	**89.9**	----	**90.5**
4-Terphenyl-d14	1718-51-0	0.5	%		----	**90.0**	**89.0**	----	**89.2**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**92.1**	**88.2**	----	**85.7**
Toluene-D8	2037-26-5	0.2	%		----	**88.1**	**97.6**	----	**96.1**
4-Bromofluorobenzene	460-00-4	0.2	%		----	**103**	**107**	----	**102**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
				Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**15.9**	**11.6**	**13.6**	**18.5**	----
EA155: Foreign Material - Type III									
Rubber	----	0.05	%		----	----	----	----	<0.05
Plastic	----	0.05	%		----	----	----	----	<0.05
Bitumen	----	0.05	%		----	----	----	----	<0.05
Paint	----	0.05	%		----	----	----	----	<0.05
Paper and Cardboard	----	0.05	%		----	----	----	----	<0.05
Cloth	----	0.05	%		----	----	----	----	<0.05
Wood	----	0.05	%		----	----	----	----	<0.05
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-		**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--		**-**	----	----	----	----
Synthetic Mineral Fibre	----	-	--		**No**	----	----	----	----
Organic Fibre	----	-	--		**No**	----	----	----	----
Sample weight (dry)	----	0.01	g		**170**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		**B.SCHRADER**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Lead	7439-92-1	5	mg/kg		**41**	**38**	**10**	**38**	----
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		**10**	**9**	**5**	**10**	----
Copper	7440-50-8	5	mg/kg		**14**	**10**	<5	**14**	----
Nickel	7440-02-0	2	mg/kg		**5**	**3**	<2	**5**	----
Zinc	7440-66-6	5	mg/kg		**96**	**67**	**14**	**106**	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
			Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
				Result	Result	Result	Result	Result
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
			Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
			Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	**0.9**	**0.7**	<0.5	**1.3**	----
Pyrene	129-00-0	0.5	mg/kg	**0.9**	**0.7**	<0.5	**1.2**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	**0.6**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	**0.5**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**1.8**	**1.4**	<0.5	**3.6**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
				Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	**150**	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**150**	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.1	R_TP07_0.3-0.5	QC200_20240321	QC100_20240321	R_TP06_0.73-1.45
			Sampling date / time	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00	21-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-008	ES2409869-009	ES2409869-010	ES2409869-011	ES2409869-013
				Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	0.1	%	----	98.2	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	81.6	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	73.6	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	102	99.8	98.9	103	----
2-Chlorophenol-D4	93951-73-6	0.5	%	87.9	86.0	84.0	88.2	----
2.4.6-Tribromophenol	118-79-6	0.5	%	95.3	92.3	92.1	97.1	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	88.2	86.3	84.5	89.4	----
Anthracene-d10	1719-06-8	0.5	%	88.8	88.2	85.9	90.0	----
4-Terphenyl-d14	1718-51-0	0.5	%	87.6	86.9	85.8	88.8	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	84.0	105	109	106	----
Toluene-D8	2037-26-5	0.2	%	92.6	94.4	95.0	91.5	----
4-Bromofluorobenzene	460-00-4	0.2	%	97.6	97.9	101	98.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
			Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	31.2	13.4	18.4
EA155: Foreign Material - Type III								
Rubber	----	0.05	%	<0.05	<0.05	----	----	----
Plastic	----	0.05	%	<0.05	<0.05	----	----	----
Bitumen	----	0.05	%	<0.05	<0.05	----	----	----
Paint	----	0.05	%	<0.05	<0.05	----	----	----
Paper and Cardboard	----	0.05	%	<0.05	<0.05	----	----	----
Cloth	----	0.05	%	<0.05	<0.05	----	----	----
Wood	----	0.05	%	<0.05	<0.05	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	No
Asbestos (Trace)	1332-21-4	-	-	----	----	No	----	No
Asbestos Type	1332-21-4	-	--	----	----	-	----	-
Synthetic Mineral Fibre	----	-	--	----	----	No	----	No
Organic Fibre	----	-	--	----	----	No	----	No
Sample weight (dry)	----	0.01	g	----	----	134	----	300
APPROVED IDENTIFIER:	----	-	--	----	----	B.SCHRADER	----	B.SCHRADER
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	----	----	62	11	7
Arsenic	7440-38-2	5	mg/kg	----	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	----	12	----	----
Copper	7440-50-8	5	mg/kg	----	----	21	----	----
Nickel	7440-02-0	2	mg/kg	----	----	8	----	----
Zinc	7440-66-6	5	mg/kg	----	----	147	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
			Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
				Result	Result	Result	Result	Result
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
			Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
				Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	**3.1**	**0.7**	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	**0.6**	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	**5.9**	**2.5**	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	----	**5.6**	**2.3**	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	**1.9**	**1.4**	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	**1.9**	**1.4**	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	**2.8**	**2.0**	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	**0.9**	**0.7**	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	**2.4**	**1.4**	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	**1.6**	**0.8**	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	**2.0**	**0.9**	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	**28.7**	**14.1**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	**3.2**	**1.9**	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
				Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	**3.4**	**2.2**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	**3.6**	**2.4**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	**170**	**140**	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	**170**	**140**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	----	<1	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_TP07_0.0-0.15	R_TP03_0.12-0.55	R_BH08A_0.0-0.1	BH35/GW35_0.3-0.4	BH35/GW35_0.8-0.9
				Sampling date / time	21-Mar-2024 00:00	20-Mar-2024 00:00	21-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-015	ES2409869-020	ES2409869-022	ES2409869-026	ES2409869-027
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**91.4**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	**91.7**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	**99.0**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**99.2**	**99.0**	**97.7**
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**85.2**	**86.8**	**82.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**93.1**	**91.9**	**89.7**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**85.2**	**85.5**	**85.0**
Anthracene-d10	1719-06-8	0.5	%		----	----	**85.5**	**86.5**	**79.9**
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**85.4**	**84.6**	**85.3**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	**77.9**	**98.1**	**103**
Toluene-D8	2037-26-5	0.2	%		----	----	**87.1**	**84.5**	**89.5**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	**92.8**	**94.6**	**99.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.9**	**15.6**	**14.3**	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----
Organic Fibre	----	-	--	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**411**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**B.SCHRADER**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	**23**	**12**	**11**	----	----
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**8**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**3**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**14**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
			Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	0.9	0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	2.5	1.8	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	2.4	1.7	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	1.1	0.9	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	1.2	1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	1.7	1.6	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	0.7	0.6	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	1.4	1.1	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	0.8	0.7	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	1.0	0.8	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	13.7	10.7	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	1.8	1.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	2.1	1.7	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	2.4	2.0	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	**120**	**120**	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**120**	**120**	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**3.6**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.0**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.3**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.8**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	**13.7**
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**6.1**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**108**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**111**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**86.0**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**101**	**102**	**105**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R_BH10A_1.7-1.8	QC100_20240322	QC200_20240322	TRIP BLANK - 1	TRIP SPIKE - 1 TS 14
				Sampling date / time	22-Mar-2024 00:00	22-Mar-2024 00:00	22-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2409869-032	ES2409869-035	ES2409869-036	ES2409869-037	ES2409869-038
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		87.5	85.2	90.2	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		90.7	90.5	93.4	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		87.0	87.5	89.1	----	----
Anthracene-d10	1719-06-8	0.5	%		88.9	88.8	89.7	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		88.2	88.1	88.8	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		96.2	91.0	115	87.2	85.4
Toluene-D8	2037-26-5	0.2	%		88.4	89.7	100	95.8	87.4
4-Bromofluorobenzene	460-00-4	0.2	%		97.5	100	110	104	100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP CONTROL SPIKE - 1 TCS 14	----	----	----	----
				Sampling date / time	18-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2409869-040	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		**4.5**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		**4.9**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**5.2**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		**2.2**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		**16.8**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		**7.4**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**111**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**90.4**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**103**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240321	QC300_20240322	----	----	----
				Sampling date / time	21-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409869-025	ES2409869-039	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240321	QC300_20240322	----	----	----
				Sampling date / time	21-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409869-025	ES2409869-039	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**25.4**	**27.2**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240321	QC300_20240322	----	----	----
				Sampling date / time	21-Mar-2024 00:00	22-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2409869-025	ES2409869-039	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**43.6**	**43.8**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**61.0**	**54.7**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**64.6**	**71.3**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**72.4**	**84.7**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**72.0**	**87.5**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**101**	**114**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**109**	**113**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**115**	**136**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	R_TP03_0.0-0.12 - 20-Mar-2024 00:00	A soil sample.
EA200: Description	R_TP06_0.0-0.1 - 21-Mar-2024 00:00	A soil sample.
EA200: Description	R_TP07_0.0-0.1 - 21-Mar-2024 00:00	A soil sample.
EA200: Description	R_BH08A_0.0-0.1 - 21-Mar-2024 00:00	A soil sample.
EA200: Description	BH35/GW35_0.8-0.9 - 22-Mar-2024 00:00	A soil sample.
EA200: Description	R_BH10A_1.7-1.8 - 22-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material - Type III

QUALITY CONTROL REPORT

Work Order	: **ES2409869**	Page	: 1 of 15
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 22-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 27-Mar-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 46		
No. of samples analysed	: 23		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5697458)									
ES2409869-032	R_BH10A_1.7-1.8	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	23	22	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	14	0.0	No Limit
ES2409869-003	R_TP03_0.55-1.3	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	9	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	45	46	3.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	28	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5697460)									
ES2409869-006	R_TP06_0.3-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	6.8	6.4	7.3	No Limit
ES2410015-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	13.6	14.0	3.1	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5697459)									
ES2410015-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2409869-003	R_TP03_0.55-1.3	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5689966)									
ES2409869-006	R_TP06_0.3-0.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5689965)									
ES2409869-006	R_TP06_0.3-0.5	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5689965)									
ES2409869-006	R_TP06_0.3-0.5	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5689965) - continued									
ES2409869-006	R_TP06_0.3-0.5	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5689963)									
ES2409806-003	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2409869-006	R_TP06_0.3-0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689963)									
ES2409806-003	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	2.9	2.7	7.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5689963) - continued									
ES2409806-003	Anonymous	EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.9	0.7	27.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	8.2	8.3	1.2	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	7.6	7.7	1.8	0% - 50%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	3.4	3.2	5.2	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	3.4	3.3	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	4.6	4.6	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	2.0	1.8	11.5	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	4.1	4.1	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	2.4	2.4	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	3.0	3.0	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	43.1	42.3	1.9	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	5.4	5.4	0.0	0% - 50%
ES2409869-006	R_TP06_0.3-0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.2	1.4	10.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.2	1.3	9.1	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.6	0.7	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	4.1	5.5	29.2	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.7	0.7	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689603)									
ES2409806-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2409869-022	R_BH08A_0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689964)									
ES2409806-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409869-006	R_TP06_0.3-0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689603)									
ES2409806-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2409869-022	R_BH08A_0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689964)									
ES2409806-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	170	160	8.7	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2409869-006	R_TP06_0.3-0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5689603)									
ES2409806-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2409869-022	R_BH08A_0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5696953)									
ES2409547-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5696953) - continued									
ES2409547-001	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.014	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.008	12.7	No Limit
ES2409784-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001 (0.0010)*	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001 (0.010) *	mg/L	0.111	0.110	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001 (0.010) *	mg/L	0.423	0.428	1.2	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001 (0.010) *	mg/L	0.018	0.018	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001 (0.010) *	mg/L	0.184	0.181	1.8	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005 (0.050) *	mg/L	0.436	0.423	3.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5696963)									
ES2409806-010	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EW2401396-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2409689-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2409689-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit
EP080: BTEXN (QC Lot: 5689688)									
ES2409664-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2409689-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5689688) - continued									
ES2409689-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5697458)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	103	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	94.0	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	117	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	108	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	101	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	98.8	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	93.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5697459)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	96.7	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5689966)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	107	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689965)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689965) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.5	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5689965)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	91.1	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	80.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	81.7	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	95.6	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.4	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	86.0	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	93.1	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	86.7	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	99.5	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	91.0	54.0	114

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.2	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	55.6	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689963)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	103	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	97.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.9	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.0	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	94.4	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.2	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	108	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	95.7	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689603)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.0	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689964)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	89.2	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.4	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.9	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689603)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689964)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	110	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.5	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	83.7	63.0	131
EP080: BTEXN (QCLot: 5689603)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.2	76.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5689603) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.9	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.8	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	97.5	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.6	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.2	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5696953)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	88.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	87.7	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	89.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	87.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.5	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	85.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5696963)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5690071)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	75.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	69.9	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	73.4	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	75.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	82.7	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	85.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	93.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	82.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	93.8	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	65.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	84.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	96.1	59.9	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5690071) - continued								
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	# 122	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	105	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689688)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.1	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5690072)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	86.8	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	76.8	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	110	58.3	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689688)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	78.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5690072)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	70.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	79.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	88.5	50.5	115
EP080: BTEXN (QCLot: 5689688)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	90.9	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	94.3	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.6	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.9	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	100	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	104	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5697458)							
ES2409869-003	R_TP03_0.55-1.3	EG005T: Arsenic	7440-38-2	50 mg/kg	101	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	103	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5697458) - continued							
ES2409869-003	R_TP03_0.55-1.3	EG005T: Nickel	7440-02-0	50 mg/kg	102	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	102	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5697459)							
ES2409869-003	R_TP03_0.55-1.3	EG035T: Mercury	7439-97-6	5 mg/kg	97.7	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5689966)							
ES2409869-006	R_TP06_0.3-0.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	112	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5689965)							
ES2409869-006	R_TP06_0.3-0.5	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	99.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	96.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.0	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	106	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	98.0	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	76.0	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5689965)							
ES2409869-006	R_TP06_0.3-0.5	EP068: Diazinon	333-41-5	0.5 mg/kg	74.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	94.1	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	85.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	93.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	77.3	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5689963)							
ES2409869-006	R_TP06_0.3-0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	101	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	102	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	101	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	97.1	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	83.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5689963)							
ES2409869-006	R_TP06_0.3-0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	108	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689603)							
ES2409806-003	Anonymous	EP080: C6 - C9 Fraction	----	16.25 mg/kg	72.0	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689964)							
ES2409869-006	R_TP06_0.3-0.5	EP071: C10 - C14 Fraction	----	480 mg/kg	102	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	95.5	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	110	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689603)							
ES2409806-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	18.75 mg/kg	76.6	61.1	142

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689964)							
ES2409869-006	R_TP06_0.3-0.5	EP071: >C10 - C16 Fraction	----	860 mg/kg	95.1	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	103	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	104	52.0	132
EP080: BTEXN (QCLot: 5689603)							
ES2409806-003	Anonymous	EP080: Benzene	71-43-2	1.25 mg/kg	85.8	62.1	122
		EP080: Toluene	108-88-3	1.25 mg/kg	104	66.6	119
		EP080: Ethylbenzene	100-41-4	1.25 mg/kg	104	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	1.25 mg/kg	113	66.4	121
		EP080: ortho-Xylene	95-47-6	1.25 mg/kg	114	70.7	121
		EP080: Naphthalene	91-20-3	1.25 mg/kg	105	61.1	115

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5696953)							
ES2409547-002	Anonymous	EG020A-T: Arsenic	7440-38-2	10 mg/L	109	70.0	130
		EG020A-T: Cadmium	7440-43-9	2.5 mg/L	97.7	70.0	130
		EG020A-T: Chromium	7440-47-3	10 mg/L	98.1	70.0	130
		EG020A-T: Copper	7440-50-8	10 mg/L	101	70.0	130
		EG020A-T: Lead	7439-92-1	10 mg/L	98.0	70.0	130
		EG020A-T: Nickel	7440-02-0	10 mg/L	99.1	70.0	130
		EG020A-T: Zinc	7440-66-6	10 mg/L	97.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5696963)							
ES2409705-005	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	84.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	82.1	70.0	130
EP080: BTEXN (QCLot: 5689688)							
ES2409664-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	92.9	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	90.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.6	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	95.2	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2409869**	Page	: 1 of 11
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 22-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ----	No. of samples received	: 46
Order number	: 60709736	No. of samples analysed	: 23

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	QC-5690071-002	----	**Dibenz(a.h)anthracene**	53-70-3	122 %	61.2-117%	**Recovery greater than upper control limit**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
R_TP03_0.55-1.3,	R_TP03_1.30-2.0	**20-Mar-2024**	**----**	----	----	**02-Apr-2024**	03-Apr-2024	✓
Soil Glass Jar - Unpreserved (EA055)								
R_TP06_0.3-0.5,	R_TP07_0.0-0.1,	**21-Mar-2024**	**----**	----	----	**02-Apr-2024**	04-Apr-2024	✓
R_TP07_0.3-0.5,	QC200_20240321,							
QC100_20240321,	R_BH08A_0.0-0.1							
Soil Glass Jar - Unpreserved (EA055)								
BH35/GW35_0.3-0.4,	BH35/GW35_0.8-0.9,	**22-Mar-2024**	**----**	----	----	**02-Apr-2024**	05-Apr-2024	✓
R_BH10A_1.7-1.8,	QC100_20240322,							
QC200_20240322								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA155: Foreign Material - Type III								
Snap Lock Bag (EA155) R_TP03_0.12-0.55		**20-Mar-2024**	**----**	----	**----**	**03-Apr-2024**	16-Sep-2024	✓
Snap Lock Bag (EA155) R_TP06_0.73-1.45,	R_TP07_0.0-0.15	**21-Mar-2024**	**----**	----	**----**	**03-Apr-2024**	17-Sep-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R_TP03_0.0-0.12		**20-Mar-2024**	**----**	----	**----**	**28-Mar-2024**	16-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R_BH08A_0.0-0.1		**21-Mar-2024**	**----**	----	**----**	**03-Apr-2024**	17-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R_TP06_0.0-0.1,	R_TP07_0.0-0.1	**21-Mar-2024**	**----**	----	**----**	**28-Mar-2024**	17-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) BH35/GW35_0.8-0.9,	R_BH10A_1.7-1.8	**22-Mar-2024**	**----**	----	**----**	**28-Mar-2024**	18-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) R_TP03_0.55-1.3,	R_TP03_1.30-2.0	**20-Mar-2024**	**02-Apr-2024**	16-Sep-2024	✓	**02-Apr-2024**	16-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T) R_TP06_0.3-0.5, R_TP07_0.3-0.5, QC100_20240321,	R_TP07_0.0-0.1, QC200_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**02-Apr-2024**	17-Sep-2024	✓	**02-Apr-2024**	17-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T) BH35/GW35_0.3-0.4, R_BH10A_1.7-1.8, QC200_20240322	BH35/GW35_0.8-0.9, QC100_20240322,	**22-Mar-2024**	**02-Apr-2024**	18-Sep-2024	✓	**02-Apr-2024**	18-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) R_TP03_0.55-1.3,	R_TP03_1.30-2.0	**20-Mar-2024**	**02-Apr-2024**	17-Apr-2024	✓	**03-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) R_TP06_0.3-0.5, R_TP07_0.3-0.5, QC100_20240321,	R_TP07_0.0-0.1, QC200_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**02-Apr-2024**	18-Apr-2024	✓	**03-Apr-2024**	18-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) R_BH10A_1.7-1.8		**22-Mar-2024**	**02-Apr-2024**	19-Apr-2024	✓	**03-Apr-2024**	19-Apr-2024	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) R_TP06_0.3-0.5, R_BH08A_0.0-0.1	R_TP07_0.3-0.5,	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**29-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP066) R_BH10A_1.7-1.8		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**29-Mar-2024**	06-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) R_TP06_0.3-0.5, R_BH08A_0.0-0.1	R_TP07_0.3-0.5,	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP068) R_BH10A_1.7-1.8		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) R_TP06_0.3-0.5, R_BH08A_0.0-0.1	R_TP07_0.3-0.5,	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP068) R_BH10A_1.7-1.8		**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) R_TP03_0.55-1.3		**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R_TP06_0.3-0.5, R_BH08A_0.0-0.1	R_TP07_0.3-0.5,	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH35/GW35_0.3-0.4, R_BH10A_1.7-1.8, QC200_20240322	BH35/GW35_0.8-0.9, QC100_20240322,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) R_TP03_0.55-1.3,	R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) R_TP06_0.3-0.5, R_TP07_0.3-0.5, QC100_20240321,	R_TP07_0.0-0.1, QC200_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH35/GW35_0.3-0.4, R_BH10A_1.7-1.8, QC200_20240322	BH35/GW35_0.8-0.9, QC100_20240322,	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TRIP BLANK - 1	**18-Mar-2024**	**27-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
R_TP03_0.55-1.3, R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**27-Mar-2024**	03-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
R_TP03_0.55-1.3, R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
R_TP06_0.3-0.5, R_TP07_0.0-0.1, R_TP07_0.3-0.5, QC200_20240321, QC100_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**27-Mar-2024**	04-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
R_TP06_0.3-0.5, R_TP07_0.0-0.1, R_TP07_0.3-0.5, QC200_20240321, QC100_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP080)							
BH35/GW35_0.3-0.4, BH35/GW35_0.8-0.9, R_BH10A_1.7-1.8, QC100_20240322, QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
BH35/GW35_0.3-0.4, BH35/GW35_0.8-0.9, R_BH10A_1.7-1.8, QC100_20240322, QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK - 1	**18-Mar-2024**	**27-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP03_0.55-1.3, R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**27-Mar-2024**	03-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R_TP03_0.55-1.3, R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP06_0.3-0.5, R_TP07_0.0-0.1, R_TP07_0.3-0.5, QC200_20240321, QC100_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**27-Mar-2024**	04-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R_TP06_0.3-0.5, R_TP07_0.0-0.1, R_TP07_0.3-0.5, QC200_20240321, QC100_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH35/GW35_0.3-0.4, BH35/GW35_0.8-0.9, R_BH10A_1.7-1.8, QC100_20240322, QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH35/GW35_0.3-0.4, BH35/GW35_0.8-0.9, R_BH10A_1.7-1.8, QC100_20240322, QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	06-May-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK - 1, TRIP SPIKE - 1 - TS 14, TRIP CONTROL SPIKE - 1 - TCS 14	**18-Mar-2024**	**27-Mar-2024**	01-Apr-2024	✓	**27-Mar-2024**	01-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP03_0.55-1.3, R_TP03_1.30-2.0	**20-Mar-2024**	**27-Mar-2024**	03-Apr-2024	✓	**27-Mar-2024**	03-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP06_0.3-0.5, R_TP07_0.0-0.1, R_TP07_0.3-0.5, QC200_20240321, QC100_20240321, R_BH08A_0.0-0.1	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**27-Mar-2024**	04-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH35/GW35_0.3-0.4, BH35/GW35_0.8-0.9, R_BH10A_1.7-1.8, QC100_20240322, QC200_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**27-Mar-2024**	05-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240321	**21-Mar-2024**	**02-Apr-2024**	17-Sep-2024	✓	**02-Apr-2024**	17-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240322	**22-Mar-2024**	**02-Apr-2024**	18-Sep-2024	✓	**02-Apr-2024**	18-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240321	**21-Mar-2024**	**----**	----	----	**03-Apr-2024**	18-Apr-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240322	**22-Mar-2024**	**----**	----	----	**03-Apr-2024**	19-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	28-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	28-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	04-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	28-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	29-Mar-2024	✓	**29-Mar-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	04-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240321	**21-Mar-2024**	**27-Mar-2024**	04-Apr-2024	✓	**28-Mar-2024**	04-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240322	**22-Mar-2024**	**27-Mar-2024**	05-Apr-2024	✓	**28-Mar-2024**	05-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Foreign Material Content	EA155	SOIL	In house: Referenced to RTA T276. Foreign Material Content
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2409869**		
Amendment	: **2**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 22-Mar-2024 17:20	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 04-Apr-2024	Scheduled Reporting Date	: **04-Apr-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 1.6, 3.7, 0.1'C - Ice present
Receipt Detail	: +FMT bags	No. of samples received / analysed	: 46 / 23

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Coal Tar analysis will be conducted by Envirolab.**
- This is an updated SRN which indicates the addition of FMT analysis after confirming ENM method by client.
- **Two sets of trip spikes and blanks received. Analysis only conducted on one set.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Samples 44-46 were received as extra.**
- **Asbestos and FMT analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2409869-038 : [18-Mar-2024] : TRIP SPIKE - 1 - TS 14
ES2409869-040 : [18-Mar-2024] : TRIP CONTROL SPIKE - 1 - TCS 14
ES2409869-042 : [18-Mar-2024] : TRIP SPIKE - 2 - TS 15
ES2409869-043 : [18-Mar-2024] : TRIP CONTROL SPIKE - 2 - TCS 15

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA155-ENM NSW DECC Excavated Natural Materials	SOIL - EA200 Asbestos Identification in Soils -	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2409869-001	20-Mar-2024 00:00	R_TP03_0.0-0.12				✓			
ES2409869-002	20-Mar-2024 00:00	R_TP03_0.12-0.55	✓						
ES2409869-003	20-Mar-2024 00:00	R_TP03_0.55-1.3		✓					✓
ES2409869-004	20-Mar-2024 00:00	R_TP03_1.30-2.0		✓				✓	
ES2409869-005	21-Mar-2024 00:00	R_TP06_0.0-0.1				✓			
ES2409869-006	21-Mar-2024 00:00	R_TP06_0.3-0.5		✓			✓		
ES2409869-007	21-Mar-2024 00:00	R_TP06_0.73-1.45	✓						
ES2409869-008	21-Mar-2024 00:00	R_TP07_0.0-0.1		✓		✓		✓	
ES2409869-009	21-Mar-2024 00:00	R_TP07_0.3-0.5		✓			✓		
ES2409869-010	21-Mar-2024 00:00	QC200_20240321		✓				✓	
ES2409869-011	21-Mar-2024 00:00	QC100_20240321		✓				✓	
ES2409869-012	21-Mar-2024 00:00	R_TP06_0.2-0.7	✓						
ES2409869-013	21-Mar-2024 00:00	R_TP06_0.73-1.45			✓				
ES2409869-014	21-Mar-2024 00:00	R_TP06_1.45-2.1	✓						
ES2409869-015	21-Mar-2024 00:00	R_TP07_0.0-0.15			✓				
ES2409869-016	21-Mar-2024 00:00	R_TP07_0.59-1.0	✓						
ES2409869-017	21-Mar-2024 00:00	R_TP07_0.15-0.59	✓						
ES2409869-018	21-Mar-2024 00:00	R_TP07_1.0-1.9	✓						
ES2409869-019	20-Mar-2024 00:00	R_TP03_1.3-2.0	✓						
ES2409869-020	20-Mar-2024 00:00	R_TP03_0.12-0.55			✓				
ES2409869-021	20-Mar-2024 00:00	R_TP03_0.55-1.3	✓						
ES2409869-022	21-Mar-2024 00:00	R_BH08A_0.0-0.1		✓		✓	✓		
ES2409869-023	21-Mar-2024 00:00	R_BH08A_0.9-1.0	✓						
ES2409869-024	21-Mar-2024 00:00	R_BH08A_1.9-2.0	✓						
ES2409869-026	22-Mar-2024 00:00	BH35/GW35_0.3-0.4		✓					
ES2409869-027	22-Mar-2024 00:00	BH35/GW35_0.8-0.9		✓		✓			
ES2409869-028	22-Mar-2024 00:00	BH35/GW35_1.7-1.8	✓						
ES2409869-029	22-Mar-2024 00:00	R_BH10A_0.1-0.2	✓						
ES2409869-030	22-Mar-2024 00:00	R_BH10A_0.4-0.5	✓						
ES2409869-031	22-Mar-2024 00:00	R_BH10A_0.7-0.8	✓						
ES2409869-032	22-Mar-2024 00:00	R_BH10A_1.7-1.8		✓		✓	✓		

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA155-ENM NSW DECC Excavated Natural Materials	SOIL - EA200 Asbestos Identification in Soils -	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2409869-033	22-Mar-2024 00:00	R_BH10A_2.8-2.95	✓						
ES2409869-035	22-Mar-2024 00:00	QC100_20240322		✓					
ES2409869-036	22-Mar-2024 00:00	QC200_20240322		✓					
ES2409869-041	18-Mar-2024 00:00	TRIP BLANK - 2	✓						
ES2409869-042	18-Mar-2024 00:00	TRIP SPIKE - 2 TS 15	✓						
ES2409869-043	18-Mar-2024 00:00	TRIP CONTROL SPIKE -...	✓						
ES2409869-044	19-Mar-2024 00:00	R_TP11_0.1-0.6	✓						
ES2409869-045	19-Mar-2024 00:00	R_TP11_0.6-1.4	✓						
ES2409869-046	19-Mar-2024 00:00	R_TP11_1.4-2.7	✓						

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - EP080 BTEXN	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-21 TRH/BTEXN/PAH + Pb	SOIL - S-25 TRH/BTEXN/PAH/Phenols/Pb
ES2409869-026	22-Mar-2024 00:00	BH35/GW35_0.3-0.4	✓				✓	
ES2409869-027	22-Mar-2024 00:00	BH35/GW35_0.8-0.9	✓				✓	
ES2409869-034	22-Mar-2024 00:00	R_BH10A_0.2-0.3			✓			
ES2409869-035	22-Mar-2024 00:00	QC100_20240322						✓
ES2409869-036	22-Mar-2024 00:00	QC200_20240322						✓
ES2409869-037	18-Mar-2024 00:00	TRIP BLANK - 1				✓		
ES2409869-038	18-Mar-2024 00:00	TRIP SPIKE - 1 TS 14		✓				
ES2409869-040	18-Mar-2024 00:00	TRIP CONTROL SPIKE -...		✓				

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2409869-025	21-Mar-2024 00:00	QC300_20240321	✓
ES2409869-039	22-Mar-2024 00:00	QC300_20240322	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material - Type III

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347631

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2409869**
Number of Samples	1 Coal Tar
Date samples received	27/03/2024
Date completed instructions received	27/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	05/04/2024
Date of Issue	05/04/2024

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Results Approved By
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		347631-1
Your Reference	UNITS	R-BH10(B)-0.22
Type of sample		Coal Tar
Date prepared	-	03/04/2024
Date analysed	-	03/04/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

ANZ

FQM - Generic Chain of Custody Form

Subcon / Forward Lab / Split WO: **AECOM**

Lab / Analysis: Newcastle - Asbestos / FMT

Organised By / Date: Enviro Lab - Coal Tar

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric) PHONE:	Relinquished By / Date: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	Console / Courier:
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	WO No:

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: On ice

Attached By PC / Internal Sheet:

Notes: e.g. Highly contaminated sample; e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (AS4964)	TRH/BTEXN/PAH/8 METAL	PHENOLS	Fats or Material	OCP/OPP/PCB	C6-C9	BTEXN						HOLD
1	R-TP03_0.00-0.12	S	20/3/24		1 BS, 1 BAG, 1 BOTTLE		X												X
2	R-TP03_0.12-0.55	S	"		"														X
3	R-TP03_0.55-1.30	S	"		"			X	X										X
4	R-TP03_1.30-2.00	S	"		"			X											X
5	R-TP06_0.0-0.1m	S	21/3/24		1 JAR, 1 BAG		X												
6	R-TP06_0.3-0.5m	S	21/3/24		"			X	X		X								
7	R-TP06_0.8-1.4m	S	21/3/24		"														X
8	R-TP07_0-0.1m	S	21/3/24		"		X	X											
9	R-TP07_0.3-0.5m	S	21/3/24		"			X	X		X								
10	QC200-240321	S	21/3/24		1 JAR			X											
11	QC100-240321	S	21/3/24		1 JAR			X											
12	R-TP06_0.2m-0.7m	S	21/3/24		1 Bag														X
13	R-TP06_0.73m-1.45m	S	21/3/24		1 Bag					X									
14	R-TP06_1.45m-2.1m	S	21/3/24		1 Bag														X
15	R-TP07_0m-0.15m	S	21/3/24		1 Bag					X									
16	R-TP07_0.59-1.0	S	21/3/24		1 Bag														X
17	R-TP07_0.15-0.59	S	21/3/24		1 Bag														X
18	R-TP07_1m-1.9m	S	21/3/24		1 Bag														X
19	R-TP03_1.3m-2.0m	S	20/3/24		1 Bag														X
20	R-TP03_0.12m-0.55m	S	20/3/24		1 Bag					X									
21	R-TP03_0.45-1.3m	S	20/3/24		1 Bag														X

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		ME
Name:	Date:	Name:	Date:	Name: Lucas	Date: 22/3/24	Con' Note
Of:	Time:	Of:	Time:	Of: AE	Time: 1720	Transport

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plasic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

Environmental Division
Sydney
Work Order Reference
ES2409869

Telephone : + 61-2-8784 8555

COC Page 1 of

Additional sample
TRIP SPIKE - 2
TRIP BLANK - 2

X X
X
↓
C6-C9 BTEXN

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68((Eric)	PHONE: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.seritas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

	SAMPLE INFORMATION (note: S = Soil, W=Water)				CONTAINER INFORMATION		ASBESTOS(AF)	TRH/BTEXN/PAH	PHENOLS	OCP/OPP/PCB	COAL TAR	C6-C9	BTEXN	Lead	8-metals				HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
27	R-BH08_0.0-0.1	S	21/3	PM	J, ZLB	1, 1	X	X	X	X					X				
23	-0.9-1.0																		X
24	-1.8-2.0																		X
25	QC300-20240321	W			V, AG, P	2, 1, 1		X							X				
26	BH35-0.3-0.4	S	22/3	AM	J, ZLB	1, 1		X	X					X					
29	-0.8-0.9							X	X					X					
28	-1.7-1.8																		X
29	R-BH10_0.1-0.2																		X
30	-0.4-0.5																		X
31	-0.7-0.8																		X
32	-1.7-1.8						X	X	X	X					X				
33	-2.7-2.8																		X
34	R-BH10(B)_0.22	m			J	1					X								
35	QC100-20240322	S						X	X					X					
36	QC200-20240322							X	X					X					
37	TRIP BLANK-1		lab prep.									X							
38	TRIP SPIKE-1											X	X						
39	QC300-20240322	W	22/3	AM	V, AG, P	2, 1, 1		X							X				
40	TSC-1																		
41	TRIP BLANK-2																		
42	TRIP SPIKE-2																		
43	TSC_2																		

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERITAS	Date: 22/3/24	Name:	Date:	Name: NOIS	Date: 22/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AU	Time: 1720	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 2 of

CERTIFICATE OF ANALYSIS

Work Order	: **ES2410231**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 28-Mar-2024 17:00
Order number	: 60709736	Date Analysis Commenced	: 03-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:19
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 11		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-005, 011. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01A/GW01A_1.1-1.2	BH01A/GW01A_2.8-2.9	QC100_20240327	----	----
				Sampling date / time	27-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2410231-002	ES2410231-004	ES2410231-008	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**17.0**	**18.5**	**18.6**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**12**	**9**	<5	**----**	**----**
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	**----**	**----**
Chromium	7440-47-3	2	mg/kg		**24**	**20**	**20**	**----**	**----**
Copper	7440-50-8	5	mg/kg		**19**	**14**	**13**	**----**	**----**
Lead	7439-92-1	5	mg/kg		**593**	**17**	**14**	**----**	**----**
Nickel	7440-02-0	2	mg/kg		**5**	**4**	**3**	**----**	**----**
Zinc	7440-66-6	5	mg/kg		**168**	**25**	**20**	**----**	**----**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	**----**	**----**
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	**----**	**----**
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	**----**	**----**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01A/GW01A_1.1-1.2	BH01A/GW01A_2.8-2.9	QC100_20240327	----	----
				Sampling date / time	27-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2410231-002	ES2410231-004	ES2410231-008	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**1.2**	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**1.4**	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		**1.2**	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**0.5**	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**4.3**	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01A/GW01A_1.1-1.2	BH01A/GW01A_2.8-2.9	QC100_20240327	----	----
				Sampling date / time	27-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2410231-002	ES2410231-004	ES2410231-008	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**87.1**	**86.2**	**83.3**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**89.4**	**93.6**	**84.8**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**63.3**	**66.8**	**56.1**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**80.2**	**85.6**	**80.8**	----	----
Anthracene-d10	1719-06-8	0.5	%		**81.9**	**92.8**	**87.9**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**83.3**	**83.8**	**81.6**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**91.9**	**89.7**	**98.6**	----	----
Toluene-D8	2037-26-5	0.2	%		**91.6**	**87.2**	**97.5**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH01A/GW01A_1.1-1.2	BH01A/GW01A_2.8-2.9	QC100_20240327	----	----
			Sampling date / time	27-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2410231-002	ES2410231-004	ES2410231-008	--------	--------
				Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	**82.7**	**78.0**	**88.0**	**----**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240327	----	----	----	----
				Sampling date / time	27-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410231-009	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240327	----	----	----	----
				Sampling date / time	27-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410231-009	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**27.6**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240327	----	----	----	----
				Sampling date / time	27-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410231-009	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**37.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**34.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**72.2**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**87.1**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**89.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**109**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**110**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**100**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2410231**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 28-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 03-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 11		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5707120)									
ES2410445-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	43	42	0.0	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	20	18	13.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	7	7	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	13	15.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES2410280-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	29	32	10.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	30	4.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	14	9.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	100	106	6.6	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5707131)									
ES2410231-008	QC100_20240327	EA055: Moisture Content	----	0.1 (1.0)*	%	18.6	18.5	0.7	0% - 50%
ES2410334-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	11.2	11.6	3.7	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5707121)									
ES2410445-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2410280-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5699255)									
ES2410087-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2410417-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5699255)									
ES2410087-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5699255) - continued									
ES2410087-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2410417-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.3	1.8	29.9	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.3	3.5	6.4	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.1	3.4	9.4	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.8	2.0	11.6	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.5	1.8	18.8	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.1	2.1	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.9	0.9	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	2.2	2.0	7.5	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1.1	0.9	17.1	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.0	1.0	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	18.9	19.9	5.2	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.8	2.6	7.3	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5699256)									
ES2410087-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2410417-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5701424)									
ES2410381-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2410415-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5699256)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5699256) - continued									
ES2410087-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2410417-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	130	110	17.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5701424)									
ES2410381-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2410415-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5701424)									
ES2410381-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2410415-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5705978)									
ES2410254-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2410321-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0025	0.0025	0.0	0% - 20%
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5705978) - continued									
ES2410321-005	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.201	0.199	1.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.462	0.458	0.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	1.26	1.26	0.3	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5706271)									
ES2410231-009	QC300_20240327	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
WN2403969-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5701846)									
ES2410067-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2410437-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5701846)									
ES2410067-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2410437-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5701846)									
ES2410067-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2410437-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5707120)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	100	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	87.8	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	121	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	104	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	96.4	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	101	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	89.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5707121)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	124	70.0	125
EP075(SIM)A: Phenolic Compounds (QCLot: 5699255)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	96.2	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	91.2	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	89.3	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.0	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	79.3	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	89.1	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	93.9	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	89.7	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	86.3	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	88.1	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	38.3	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5699255)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.1	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.7	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.8	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	106	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.2	73.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5699255) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	94.4	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	101	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	99.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	98.0	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.1	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	103	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	96.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.4	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	94.0	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5699256)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	105	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	107	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5701424)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	102	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5699256)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	106	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	104	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	108	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5701424)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.4	72.4	133
EP080: BTEXN (QCLot: 5701424)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	86.8	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.1	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	102	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	97.0	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	100.0	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5705978)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5705978) - continued								
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	103	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.8	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706271)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	91.8	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5699159)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	68.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	76.9	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	82.1	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	94.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	96.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	98.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	95.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	104	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	102	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	88.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	101	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	99.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	98.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	99.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	101	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5699160)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	60.8	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.3	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	97.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5701846)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	89.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5699160)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.0	53.9	95.5

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5699160) - continued								
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	85.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	73.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5701846)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.2	75.0	127
EP080: BTEXN (QCLot: 5701846)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	105	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.5	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5707120)							
ES2410280-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.3	70.0	130
		EG005T: Chromium	7440-47-3	150 mg/kg	84.0	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	104	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	90.4	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	89.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5707121)							
ES2410231-002	BH01A/GW01A_1.1-1.2	EG035T: Mercury	7439-97-6	5 mg/kg	86.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5699255)							
ES2410417-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	98.8	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	96.6	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.2	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	88.5	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	70.0	20.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5699255)							
ES2410417-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	94.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5699256)							
ES2410417-002	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	112	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	119	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5701424)							
ES2410381-005	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.2	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5699256)							
ES2410417-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	115	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	112	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	121	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5701424)							
ES2410381-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.9	61.1	142
EP080: BTEXN (QCLot: 5701424)							
ES2410381-005	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.7	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	85.1	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.0	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.8	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.2	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.6	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5705978)							
ES2410101-010	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.2	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.5	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.5	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	100.0	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.2	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.6	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706271)							
ES2410231-009	QC300_20240327	EG035T: Mercury	7439-97-6	0.01 mg/L	83.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5701846)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5701846) - continued							
ES2410067-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	92.0	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5701846)							
ES2410067-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	92.5	70.0	130
EP080: BTEXN (QCLot: 5701846)							
ES2410067-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	107	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	98.0	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.3	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2410231**	Page	: 1 of 7
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 28-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas	No. of samples received	: 11
Order number	: 60709736	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH01A/GW01A_1.1-1.2, QC100_20240327	BH01A/GW01A_2.8-2.9,	**27-Mar-2024**	**----**	----	----	**05-Apr-2024**	10-Apr-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH01A/GW01A_1.1-1.2, QC100_20240327	BH01A/GW01A_2.8-2.9,	**27-Mar-2024**	**05-Apr-2024**	23-Sep-2024	✓	**08-Apr-2024**	23-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH01A/GW01A_1.1-1.2, QC100_20240327	BH01A/GW01A_2.8-2.9,	**27-Mar-2024**	**05-Apr-2024**	24-Apr-2024	✓	**09-Apr-2024**	24-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH01A/GW01A_1.1-1.2, QC100_20240327	BH01A/GW01A_2.8-2.9,	**27-Mar-2024**	**03-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	13-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH01A/GW01A_1.1-1.2, QC100_20240327	BH01A/GW01A_2.8-2.9,	**27-Mar-2024**	**03-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	13-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BH01A/GW01A_1.1-1.2, BH01A/GW01A_2.8-2.9	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	03-Apr-2024	10-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH01A/GW01A_1.1-1.2, BH01A/GW01A_2.8-2.9, QC100_20240327	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) BH01A/GW01A_1.1-1.2, BH01A/GW01A_2.8-2.9	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	03-Apr-2024	10-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH01A/GW01A_1.1-1.2, BH01A/GW01A_2.8-2.9, QC100_20240327	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BH01A/GW01A_1.1-1.2, BH01A/GW01A_2.8-2.9	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	03-Apr-2024	10-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) QC100_20240327	27-Mar-2024	03-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240327	27-Mar-2024	05-Apr-2024	23-Sep-2024	✓	05-Apr-2024	23-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240327	27-Mar-2024	----	----	----	08-Apr-2024	24-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240327	27-Mar-2024	03-Apr-2024	03-Apr-2024	✓	04-Apr-2024	13-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240327	27-Mar-2024	03-Apr-2024	03-Apr-2024	✓	04-Apr-2024	13-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240327	27-Mar-2024	04-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240327	27-Mar-2024	03-Apr-2024	03-Apr-2024	✓	04-Apr-2024	13-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240327	27-Mar-2024	04-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240327	27-Mar-2024	04-Apr-2024	10-Apr-2024	✓	04-Apr-2024	10-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2410231**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 28-Mar-2024 17:00	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 09-Apr-2024	Scheduled Reporting Date	: **09-Apr-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 1.3, 7.8, 5.0'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample QC200_20240327 has been forwarded to Eurofins.**
- **Sample 11 received as extra.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2410231-010 : [25-Mar-2024] : TRIP CONTROL SPIKE - 13
ES2410231-011 : [27-Mar-2024] : BH01A/GW01A_1.35-1.45

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2410231-001	27-Mar-2024 00:00	BH01A/GW01A_0.1-0.2	✓		
ES2410231-002	27-Mar-2024 00:00	BH01A/GW01A_1.1-1.2		✓	✓
ES2410231-003	27-Mar-2024 00:00	BH01A/GW01A_2.0-2.1	✓		
ES2410231-004	27-Mar-2024 00:00	BH01A/GW01A_2.8-2.9		✓	✓
ES2410231-005	27-Mar-2024 00:00	BH01A/GW01A_3.8-3.9	✓		
ES2410231-006	25-Mar-2024 00:00	TRIP BLANK	✓		
ES2410231-007	25-Mar-2024 00:00	TRIP SPIKE 13	✓		
ES2410231-008	27-Mar-2024 00:00	QC100_20240327		✓	✓
ES2410231-010	25-Mar-2024 00:00	TRIP CONTROL SPIKE ...	✓		
ES2410231-011	27-Mar-2024 00:00	BH01A/GW01A_1.35-1.45	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2410231-009	27-Mar-2024 00:00	QC300_20240327	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: (Yes) 1.3, 7.8, 5.0 No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Subcon / Forward Lab / Split WO
Lab / Analysis: Eurofins - QC200 - 20240327
Organised By / Date:
Relinquished By / Date:
Courier / Courier:
WO No:
Attached By PO / Internal Sheet:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	PHENOLS	TRH/BTEXN	PAH/8METALS	
1	BH01_0.1-0.2	S	27/3	PM	J, ZLB	1,1				
2	-1.1-1.2						X	X		
3	-2.0-2.1									
4	-2.8-2.9						X	X		
5	-3.8-3.9									
6	TRIP BLANK									
7	TRIP SPIKE									
8	QC100-20240327					1	X	X		
-	QC200-20240327						~	X		Forward to Eurofins
9	QC300-20240327	W	27/3	PM	AG, P, V	1,1,2		X		

Environmental Division
Sydney
Work Order Reference
ES2410231
Telephone : 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY				METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 28/3	Name: Jon	Date: 28/3/24	Name:	Date:	Con' Note No:
Of:	Time: PM	Of: AES	Time: 5pm	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

Rec: TM
28/3/24
1850

CERTIFICATE OF ANALYSIS

Work Order	: **ES2410544**	Page	: 1 of 17
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024 20:11
Order number	: 60709736	Date Analysis Commenced	: 04-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 08:50
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 37		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-025, 027-033. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained. Confirmed by re-extraction and re-analysis.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-TP09_0.35-0.7	ACM-TP11_0.5-0.7	ACM-TP11_0.3-0.4	R-BH13A_1.4-1.5	BH27/GW27_1.3-1.4
			Sampling date / time	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2410544-010	ES2410544-013	ES2410544-014	ES2410544-018	ES2410544-024
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.0	15.9	12.3	9.5	22.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----
Asbestos (Trace)	1332-21-4	-	-	No	----	No	----	----
Asbestos Type	1332-21-4	-	--	-	----	-	----	----
Synthetic Mineral Fibre	----	-	--	No	----	No	----	----
Organic Fibre	----	-	--	No	----	No	----	----
Sample weight (dry)	----	0.01	g	427	----	299	----	----
APPROVED IDENTIFIER:	----	-	--	J. PAGE	----	J. PAGE	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	7	6	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	10	10	6	20
Copper	7440-50-8	5	mg/kg	<5	<5	12	<5	<5
Lead	7439-92-1	5	mg/kg	20	9	30	6	8
Nickel	7440-02-0	2	mg/kg	<2	<2	6	<2	<2
Zinc	7440-66-6	5	mg/kg	27	6	26	<5	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP09_0.35-0.7	ACM-TP11_0.5-0.7	ACM-TP11_0.3-0.4	R-BH13A_1.4-1.5	BH27/GW27_1.3-1.4
				Sampling date / time	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-010	ES2410544-013	ES2410544-014	ES2410544-018	ES2410544-024
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	----	**0.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP09_0.35-0.7	ACM-TP11_0.5-0.7	ACM-TP11_0.3-0.4	R-BH13A_1.4-1.5	BH27/GW27_1.3-1.4
				Sampling date / time	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-010	ES2410544-013	ES2410544-014	ES2410544-018	ES2410544-024
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	----	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		----	----	----	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	----	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	----	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	**85.8**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A-TP09_0.35-0.7	ACM-TP11_0.5-0.7	ACM-TP11_0.3-0.4	R-BH13A_1.4-1.5	BH27/GW27_1.3-1.4
			Sampling date / time	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2410544-010	ES2410544-013	ES2410544-014	ES2410544-018	ES2410544-024
				Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	----	**80.9**
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	----	**88.5**
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	----	**63.0**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	----	**84.1**
Anthracene-d10	1719-06-8	0.5	%	----	----	----	----	**86.6**
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	----	**86.2**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	----	**76.0**
Toluene-D8	2037-26-5	0.2	%	----	----	----	----	**86.5**
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	----	**94.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		22.0	11.6	4.3	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	No	----	----
Asbestos (Trace)	1332-21-4	-	-		----	----	No	----	----
Asbestos Type	1332-21-4	-	--		----	----	-	----	----
Synthetic Mineral Fibre	----	-	--		----	----	No	----	----
Organic Fibre	----	-	--		----	----	No	----	----
Sample weight (dry)	----	0.01	g		----	----	368	----	----
APPROVED IDENTIFIER:	----	-	--		----	----	J. PAGE	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		10	5	<5	----	----
Cadmium	7440-43-9	1	mg/kg		2	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		36	18	22	----	----
Copper	7440-50-8	5	mg/kg		<5	13	14	----	----
Lead	7439-92-1	5	mg/kg		14	22	29	----	----
Nickel	7440-02-0	2	mg/kg		<2	6	19	----	----
Zinc	7440-66-6	5	mg/kg		<5	27	39	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	<0.05	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**1.8**	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	**0.6**	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**2.4**	**0.5**	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	**2.0**	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	**0.8**	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	**0.7**	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	**0.8**	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	**0.7**	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**9.8**	**0.5**	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	**0.9**	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**1.2**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.5**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**4.7**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**5.9**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**6.0**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**2.5**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	**19.1**
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**8.5**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**77.5**	**83.3**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**99.7**	**105**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**89.0**	**93.5**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**82.3**	**82.2**	**82.7**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH27/GW27_2.3-2.4	A-TP07_0.9-1.3	A-TP07_0.05-0.3	Trip Blank	Trip Spike 12
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	27-Mar-2024 00:00	25-Mar-2024 00:00	25-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410544-025	ES2410544-030	ES2410544-033	ES2410544-035	ES2410544-036
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		90.0	88.3	84.6	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		61.6	62.4	57.8	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		80.9	83.1	84.9	----	----
Anthracene-d10	1719-06-8	0.5	%		90.4	85.0	85.0	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		81.8	85.1	86.5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		89.1	89.0	93.9	97.1	88.9
Toluene-D8	2037-26-5	0.2	%		105	102	106	107	85.6
4-Bromofluorobenzene	460-00-4	0.2	%		111	105	110	113	89.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Trip Control Spike 12	----	----	----	----
			Sampling date / time	25-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2410544-037	--------	--------	--------	--------
				Result	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	**5.5**	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**6.8**	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**6.9**	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**2.9**	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	**22.1**	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	**9.8**	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**91.7**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	**87.7**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**93.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240325	QC300_20240327	----	----	----
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2410544-026	ES2410544-034	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240325	QC300_20240327	----	----	----
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2410544-026	ES2410544-034	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**26.7**	**39.2**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240325	QC300_20240327	----	----	----
				Sampling date / time	25-Mar-2024 00:00	27-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2410544-026	ES2410544-034	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**45.2**	**55.0**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**30.9**	**43.6**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**64.8**	**96.3**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**84.7**	**50.0**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**90.3**	**79.1**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**112**	**118**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**103**	**107**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**98.1**	**102**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	A-TP09_0.35-0.7 - 25-Mar-2024 00:00	Soil sample.
EA200: Description	ACM-TP11_0.3-0.4 - 25-Mar-2024 00:00	Soil sample.
EA200: Description	A-TP07_0.05-0.3 - 27-Mar-2024 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2410544**	Page	: 1 of 15
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 04-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 37		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5704323)									
ES2410444-012	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	150	138	7.8	0% - 20%
ES2410444-012	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2	78.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	22	22.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	3	5	37.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	46	81.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	108	112	3.7	0% - 20%
ES2410587-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	5.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	23	23	0.0	No Limit
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5706358)									
ES2410544-010	A-TP09_0.35-0.7	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	8	17.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	20	8	83.2	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5706358) - continued									
ES2410544-010	A-TP09_0.35-0.7	EG005T: Zinc	7440-66-6	5	mg/kg	27	9	97.1	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5704329)									
ES2410444-014	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	21.8	23.2	5.9	0% - 20%
ES2410587-012	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	14.0	14.9	6.3	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5706364)									
ES2410646-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	5.8	4.8	18.2	No Limit
ES2410783-004	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	14.4	14.8	2.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5704322)									
ES2410444-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	54.3	No Limit
ES2410587-003	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5706357)									
ES2409505-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.6	0.9	40.0	No Limit
ES2410646-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5702499)									
ES2410544-030	A-TP07_0.9-1.3	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5706246)									
ES2410544-018	R-BH13A_1.4-1.5	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5702498)									
ES2410544-030	A-TP07_0.9-1.3	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5702498) - continued									
ES2410544-030	A-TP07_0.9-1.3	EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5702498)									
ES2410544-030	A-TP07_0.9-1.3	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5702500)									
ES2410544-030	A-TP07_0.9-1.3	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5702500)									
ES2410544-030	A-TP07_0.9-1.3	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5702500) - continued									
ES2410544-030	A-TP07_0.9-1.3	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.8	1.6	8.4	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.6	0.6	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.4	2.2	6.7	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	2.0	1.8	13.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.7	0.6	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.8	0.8	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.7	0.6	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	9.8	8.9	9.6	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	0.9	0.8	13.7	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5702497)									
ES2410544-030	A-TP07_0.9-1.3	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5703162)									
ES2410544-033	A-TP07_0.05-0.3	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2410587-023	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5702497)									
ES2410544-030	A-TP07_0.9-1.3	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5703162)									
ES2410544-033	A-TP07_0.05-0.3	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2410587-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5703162)									
ES2410544-033	A-TP07_0.05-0.3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5703162) - continued									
ES2410544-033	A-TP07_0.05-0.3	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2410587-023	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5705911)									
ES2409505-017	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.036	0.036	0.0	No Limit
ES2410437-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.071	0.066	7.5	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5706018)									
ES2409505-017	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2410437-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2410397-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5704323)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	107	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.48 mg/kg	112	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	131	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	99.4	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	106	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.3	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5706358)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	101	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	113	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	109	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	91.2	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	98.8	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	100	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	83.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5704322)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	102	70.0	125
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706357)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	104	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5702499)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	91.2	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5706246)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	89.6	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5702498)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.2	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	75.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	74.6	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	67.0	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5702498) - continued								
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.3	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	88.2	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	96.2	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5702498)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	80.7	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	74.9	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	85.3	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	77.6	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	78.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	75.8	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	90.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	80.0	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.9	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.9	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	65.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5702498) - continued								
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	60.1	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 5702500)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.4	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	90.6	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	99.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	95.1	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	83.4	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	96.2	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	95.2	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	90.1	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.1	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	79.5	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	83.4	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	48.9	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5702500)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	93.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	99.4	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	89.9	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.9	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	93.1	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	104	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.6	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.1	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	98.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.5	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	97.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	94.8	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	92.1	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.6	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5702497)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	94.8	75.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5702497) - continued								
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.9	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	92.2	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703162)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	113	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5702497)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.2	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	92.6	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	91.3	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703162)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	114	72.4	133
EP080: BTEXN (QCLot: 5703162)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	112	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	115	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	118	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	117	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	118	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	100	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5705911)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.3	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.5	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706018)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.5	77.0	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5702495)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	65.1	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	88.3	63.6	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5702495) - continued								
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	81.2	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	105	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	103	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	114	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	110	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	105	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	114	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	117	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	89.3	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	113	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	90.2	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	94.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	98.9	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5702496)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	77.1	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	84.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5702496)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	63.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	88.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	80.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75.0	127
EP080: BTEXN (QCLot: 5703486)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.6	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5704323)							
ES2410444-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	117	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	117	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	116	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5706358)							
ES2410544-010	A-TP09_0.35-0.7	EG005T: Arsenic	7440-38-2	50 mg/kg	99.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	86.0	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.5	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	84.8	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	82.1	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5704322)							
ES2410444-012	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	109	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706357)							
ES2409505-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	106	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5702499)							
ES2410544-030	A-TP07_0.9-1.3	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.2	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5706246)							
ES2410544-018	R-BH13A_1.4-1.5	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	81.4	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5702498)							
ES2410544-030	A-TP07_0.9-1.3	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	83.9	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	93.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.2	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	99.1	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	91.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.3	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5702498)							
ES2410544-030	A-TP07_0.9-1.3	EP068: Diazinon	333-41-5	0.5 mg/kg	79.6	70.0	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5702498) - continued							
ES2410544-030	A-TP07_0.9-1.3	EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.2	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	93.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	93.8	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	83.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5702500)							
ES2410544-030	A-TP07_0.9-1.3	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.9	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	96.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.9	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	86.6	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	79.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5702500)							
ES2410544-030	A-TP07_0.9-1.3	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	89.6	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5702497)							
ES2410544-030	A-TP07_0.9-1.3	EP071: C10 - C14 Fraction	----	480 mg/kg	105	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	109	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	116	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703162)							
ES2410544-033	A-TP07_0.05-0.3	EP080: C6 - C9 Fraction	----	32.5 mg/kg	113	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5702497)							
ES2410544-030	A-TP07_0.9-1.3	EP071: >C10 - C16 Fraction	----	860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	112	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	118	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703162)							
ES2410544-033	A-TP07_0.05-0.3	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	61.1	142
EP080: BTEXN (QCLot: 5703162)							
ES2410544-033	A-TP07_0.05-0.3	EP080: Benzene	71-43-2	2.5 mg/kg	109	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	110	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	114	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	121	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	114	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.6	61.1	115

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5705911)							
ES2410395-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	118	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	# Not Determined	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	# Not Determined	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706018)							
ES2410150-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	77.6	70.0	130
EP080: BTEXN (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	95.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	93.0	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.4	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	106	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2410544**	Page	: 1 of 9
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ----	No. of samples received	: 37
Order number	: 60709736	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020T: Total Metals by ICP-MS	ES2410395--001	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG020T: Total Metals by ICP-MS	ES2410395--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)	*Date extracted*	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240325	04-Apr-2024	01-Apr-2024	**3**	----	----	----
Amber Glass Bottle - Unpreserved						
QC300_20240327	04-Apr-2024	03-Apr-2024	**1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240325	04-Apr-2024	01-Apr-2024	**3**	----	----	----
Amber Glass Bottle - Unpreserved						
QC300_20240327	04-Apr-2024	03-Apr-2024	**1**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_20240325	04-Apr-2024	01-Apr-2024	**3**	----	----	----
Amber Glass Bottle - Unpreserved						
QC300_20240327	04-Apr-2024	03-Apr-2024	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) ACM-TP11_0.5-0.7, ACM-TP11_0.3-0.4, BH27/GW27_1.3-1.4, BH27/GW27_2.3-2.4	**25-Mar-2024**	**----**	----	**----**	**04-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EA055) A-TP09_0.35-0.7, R-BH13A_1.4-1.5	**25-Mar-2024**	**----**	----	**----**	**05-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EA055) A-TP07_0.9-1.3, A-TP07_0.05-0.3	**27-Mar-2024**	**----**	----	**----**	**04-Apr-2024**	10-Apr-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) ACM-TP11_0.3-0.4	**25-Mar-2024**	**----**	----	**----**	**05-Apr-2024**	21-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-TP09_0.35-0.7	**25-Mar-2024**	**----**	----	**----**	**08-Apr-2024**	21-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) A-TP07_0.05-0.3	**27-Mar-2024**	**----**	----	**----**	**05-Apr-2024**	23-Sep-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) ACM-TP11_0.5-0.7, ACM-TP11_0.3-0.4, BH27/GW27_1.3-1.4, BH27/GW27_2.3-2.4	**25-Mar-2024**	**04-Apr-2024**	21-Sep-2024	✓	**04-Apr-2024**	21-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T) A-TP09_0.35-0.7, R-BH13A_1.4-1.5	**25-Mar-2024**	**05-Apr-2024**	21-Sep-2024	✓	**05-Apr-2024**	21-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T) A-TP07_0.9-1.3, A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	23-Sep-2024	✓	**04-Apr-2024**	23-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) ACM-TP11_0.5-0.7, ACM-TP11_0.3-0.4, BH27/GW27_1.3-1.4, BH27/GW27_2.3-2.4	**25-Mar-2024**	**04-Apr-2024**	22-Apr-2024	✓	**05-Apr-2024**	22-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) A-TP09_0.35-0.7, R-BH13A_1.4-1.5	**25-Mar-2024**	**05-Apr-2024**	22-Apr-2024	✓	**08-Apr-2024**	22-Apr-2024	✓
Soil Glass Jar - Unpreserved (EG035T) A-TP07_0.9-1.3, A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	24-Apr-2024	✓	**05-Apr-2024**	24-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) R-BH13A_1.4-1.5		**25-Mar-2024**	**05-Apr-2024**	08-Apr-2024	✓	**05-Apr-2024**	15-May-2024	✓
Soil Glass Jar - Unpreserved (EP066) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**06-Apr-2024**	14-May-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**06-Apr-2024**	14-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**06-Apr-2024**	14-May-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH27/GW27_1.3-1.4,	BH27/GW27_2.3-2.4	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH27/GW27_1.3-1.4,	BH27/GW27_2.3-2.4	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BH27/GW27_1.3-1.4, Trip Blank	BH27/GW27_2.3-2.4,	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) BH27/GW27_1.3-1.4, Trip Blank	BH27/GW27_2.3-2.4,	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BH27/GW27_1.3-1.4, Trip Blank	BH27/GW27_2.3-2.4,	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) Trip Spike - 12,	Trip Control Spike - 12	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**05-Apr-2024**	08-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) A-TP07_0.9-1.3,	A-TP07_0.05-0.3	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240325	**25-Mar-2024**	**05-Apr-2024**	21-Sep-2024	✓	**05-Apr-2024**	21-Sep-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240327	**27-Mar-2024**	**05-Apr-2024**	23-Sep-2024	✓	**05-Apr-2024**	23-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240325	**25-Mar-2024**	**----**	----	----	**08-Apr-2024**	22-Apr-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240327	**27-Mar-2024**	**----**	----	----	**08-Apr-2024**	24-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	03-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	03-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	03-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240325	**25-Mar-2024**	**04-Apr-2024**	08-Apr-2024	✓	**04-Apr-2024**	08-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240327	**27-Mar-2024**	**04-Apr-2024**	10-Apr-2024	✓	**04-Apr-2024**	10-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	4	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	4	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	4	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2410544**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 27-Mar-2024 20:11	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 08-Apr-2024	Scheduled Reporting Date	: **08-Apr-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 3.5, 3.4, 2.8'C - Ice present
Receipt Detail	: 4 eskies + 17 FMT bags	No. of samples received / analysed	: 37 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN to include addional testing and sample ID updates as per Eric Serttas.
- **MIS-SOL: Coal Tar analysis will be conducted by Envirolab.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2410544-037 : [25-Mar-2024] : Trip Control Spike - 12

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP066 (solids) Polychlorinated Biphenyls by GCMS	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2410544-001	25-Mar-2024 00:00	ACM-TP11_0.5-0.7	✓						
ES2410544-002	25-Mar-2024 00:00	ACM-TP11_0.7-2.1	✓						
ES2410544-003	25-Mar-2024 00:00	ACM-TP11_0.3-0.4	✓						
ES2410544-004	25-Mar-2024 00:00	A-TP09_0.25-0.35	✓						
ES2410544-005	25-Mar-2024 00:00	A-TP09_0.7-1.5	✓						
ES2410544-006	25-Mar-2024 00:00	A-TP09_0.35-0.7	✓						
ES2410544-007	25-Mar-2024 00:00	ACM-TP11_0.7-2.1	✓						
ES2410544-008	25-Mar-2024 00:00	A-TP09_0.01-0.35	✓						
ES2410544-009	25-Mar-2024 00:00	A-TP09_0.0-0.01					✓		
ES2410544-010	25-Mar-2024 00:00	A-TP09_0.35-0.7		✓	✓			✓	
ES2410544-011	25-Mar-2024 00:00	A-TP09_0.7-1.5	✓						
ES2410544-012	25-Mar-2024 00:00	A-TP09_0.25-0.35	✓						
ES2410544-013	25-Mar-2024 00:00	ACM-TP11_0.5-0.7		✓				✓	
ES2410544-014	25-Mar-2024 00:00	ACM-TP11_0.3-0.4		✓	✓			✓	
ES2410544-015	25-Mar-2024 00:00	ACM-TP11_0.0-0.01					✓		
ES2410544-016	25-Mar-2024 00:00	ACM-TP11_0.7-1.0	✓						
ES2410544-017	25-Mar-2024 00:00	ACM-CO06_0.0-0.02					✓		
ES2410544-018	25-Mar-2024 00:00	R-BH13A_1.4-1.5		✓		✓		✓	
ES2410544-019	25-Mar-2024 00:00	R-BH13A_1.0-1.1	✓						
ES2410544-020	25-Mar-2024 00:00	R-BH13A_0.0-0.1	✓						
ES2410544-021	25-Mar-2024 00:00	R-BH13A_0.5-0.6	✓						
ES2410544-022	25-Mar-2024 00:00	BH27/GW27_0.3-0.4	✓						
ES2410544-023	25-Mar-2024 00:00	BH27/GW27_0.8-0.9	✓						
ES2410544-024	25-Mar-2024 00:00	BH27/GW27_1.3-1.4		✓					✓
ES2410544-025	25-Mar-2024 00:00	BH27/GW27_2.3-2.4		✓					✓
ES2410544-027	27-Mar-2024 00:00	A-TP07_0.3-0.7	✓						
ES2410544-028	27-Mar-2024 00:00	A-TP07_0.9-1.3	✓						
ES2410544-029	27-Mar-2024 00:00	A-TP07_0.05_0.3	✓						
ES2410544-030	27-Mar-2024 00:00	A-TP07_0.9-1.3		✓					
ES2410544-031	27-Mar-2024 00:00	A-TP07_0.3-0.7	✓						
ES2410544-032	27-Mar-2024 00:00	A-TP07_0.0-0.05	✓						
ES2410544-033	27-Mar-2024 00:00	A-TP07_0.05-0.3		✓	✓				

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals
ES2410544-030	27-Mar-2024 00:00	A-TP07_0.9-1.3			✓
ES2410544-033	27-Mar-2024 00:00	A-TP07_0.05-0.3			✓
ES2410544-035	25-Mar-2024 00:00	Trip Blank		✓	
ES2410544-036	25-Mar-2024 00:00	Trip Spike 12	✓		
ES2410544-037	25-Mar-2024 00:00	Trip Control Spike ...	✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2410544-026	25-Mar-2024 00:00	QC300_20240325	✓
ES2410544-034	27-Mar-2024 00:00	QC300_20240327	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

For Contam page 1

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION Type / Code	Total bottles	ASBESTOS (AS4964)	8 METALS	PCB	HOLD
1	ACM-TP11-0.5-0.7m	S	25/03/24	✓	Bulk Bag x1					X
2	ACM-TP11-0.7-2.1m	S	25/03/24	✓	Bulk Bag x1					X
3	ACM-TP11-0.3-0.4m	S	25/03/24	✓	Bulk Bag x1					X
4	A-TP09-0.25-0.35m	S	25/03/24	✓	Bulk Bag x1					X
5	A-TP09-0.7-1.5m	S	25/03/24	✓	Bulk Bag x1					X
6	A-TP09-0.35-0.7m	S	25/03/24	✓	Bulk Bag x1					X
7	2240325-ACM-TP11-0.7-2.1m	S	25/03/24	✓	1x JAR + 1x BAG					X
8	2240325-A-TP09-0.0-0.35m	S	25/03/24	✓	1x JAR + 1x BAG					X
9	2240325-A-TP09-0.0-0.01m	S	25/03/24	✓	1x JAR	*Cold TAT				X
10	2240325-A-TP09-0.35-0.7m	S	25/03/24	✓	1x JAR + 1x BAG					X
11	2240325-A-TP09-0.7-1.5m	S	25/03/24	✓	1x JAR + 1x BAG					X
12	2240325-A-TP09-0.25-0.35m	S	25/03/24	✓	1x JAR + 1x BAG					X
13	~~2240325-A-TP~~									
14	2240325-ACM-TP11-0.5-0.7m	S	25/03/24	✓	1x JAR + 1x BAG			X		X
15	2240325-ACM-TP11-0.3-0.4m	S	25/03/24	✓	1x JAR + 1x BAG		X	X		X
16	2240325-ACM-TP11-0-0.01		25/03/24	✓	1x JAR	*Cold TAT				X
17	2240325-ACM-TP11-0.7m-1m	S	25/03/24	✓	1x JAR + 1x BAG					X
18	2240325-ACM-Co06-0-0.01?		25/03/24	✓	1x JAR	*Cold TAT				X
19	2240325-R-CP08-1.4-1.5	S	25/03/24	✓	1x JAR + 1x BAG					X
20	2240325-R-CP08-1.0-1.1	S	25/03/24	✓	1x JAR + 1x BAG					X
21	2240325-R-CP08-0-0.1	S	25/03/24	✓	1x JAR + 1x BAG					X

Split WO
Analysis: Newcastle - Asbestos
Envirolab - Coal Tar
Courier / Courier:
Tax:
Internal Sheet

Environmental Division
Sydney
Work Order Reference
ES2410544

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METI
Name:	Date:	Name:	Date:	Name: WCW	Date: 27/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: AU	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 3

page 2

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM		ADDRESS / OFFICE:	SAMPLER:		Destination Laboratory
PROJECT MANAGER (PM): James Jentz		SITE: Wyong	MOBILE: +61 419 167 68[illegible] (Eric)	PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100		P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com		
RESULTS REQUIRED (Date): Standard TAT		QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)		

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PHENOLS	TRH/BTEXN / PAH/8metals	HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles				
21	240325-R-CPT08-0.5-0.6	S	25/3/24	/	1xJAR+1xBAG	1,1			X	
22	BH02-0.3-0.4			PM	J, ZLP					
23	-0.8-0.9									
24	-1.3-1.4						X	X		
25	-2.3-2.4						X	X		
26	QC300.20240325	W			AG, P, V	1,1,2		X		

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: Was	Date: 27/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: ALS	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

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FOR CONTAM

PAGE 3 of 4

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GEOTECH TEAM	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (A/F)	TRH/BTEX/PAH/8 METALS	OCP/OPP/PCB	PHENOLS	Cr6+ Cr	NOx-N						HOLD
20240327 - 28	A-TP07-0.3-0.7m	S	27/03/24	/	BULK BAG x 1													X
20240327 - 29	A-TP07-0.9-1.3m	S	27/03/24	/	BULK BAG x 1													X
26	A-TP07-0.05-0.3m	S	27/03/24	/	BULK BAG x 1													X
30	A-TP07-0.9-1.3m	S	27/03/24	/	1 x JAR + 1 x BAG			X	X	X								X
31	A-TP07-0.3-0.7m	S	27/03/24	/	1 x BAG + 1 x JAR													X
32	A-TP07-0-0.05m	S	27/03/24	/	1 x JAR + 1 x BAG													X
33	A-TP07-0.05-0.3m	S	27/03/24	/	1 x BAG + 1 x JAR		X	X	X	X								X
34	QC300-20240327	W	27/03/24	/	1 x BAG			X										X
35	TRIP BLANK	S	Not Applicable		J	1					X							
36	TRIP SPIKE	↓			↓	1					X	X						
37	Trip Control Spike																	

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 27/3	Name:	Date:	Name: WOOS	Date: 27/3/24	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: AB	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 3

CERTIFICATE OF ANALYSIS

Work Order	: **ES2410587**	Page	: 1 of 23
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024 20:11
Order number	: 60709736	Date Analysis Commenced	: 04-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 08:55
Sampler	: GEOTECH TEAM		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 36		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080&EP074: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-031. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend

- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		18.6	18.9	23.5	14.0	13.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	----	----	No
Asbestos (Trace)	1332-21-4	-	-		----	No	----	----	No
Asbestos Type	1332-21-4	-	--		----	-	----	----	-
Synthetic Mineral Fibre	----	-	--		----	No	----	----	No
Organic Fibre	----	-	--		----	No	----	----	No
Sample weight (dry)	----	0.01	g		----	506	----	----	304
APPROVED IDENTIFIER:	----	-	--		----	B.SCHRADER	----	----	B.SCHRADER
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	6	8	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		20	21	28	8	9
Copper	7440-50-8	5	mg/kg		12	6	20	6	6
Lead	7439-92-1	5	mg/kg		12	20	19	28	21
Nickel	7440-02-0	2	mg/kg		5	7	6	3	3
Zinc	7440-66-6	5	mg/kg		23	14	36	22	20
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
^ **Total Chlordane (sum)**	----	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2	
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2	
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
			Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit	ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**100**	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	**100**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**110**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	**110**	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**220**	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**----**	**86.2**	**87.4**	**83.4**	**84.5**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**----**	**96.0**	**95.1**	**92.6**	**94.1**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**----**	**96.1**	**94.6**	**92.3**	**95.7**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**84.0**	**85.7**	**87.5**	**82.4**	**86.6**
2-Chlorophenol-D4	93951-73-6	0.5	%		**88.8**	**85.7**	**89.1**	**87.0**	**90.7**
2.4.6-Tribromophenol	118-79-6	0.5	%		**61.1**	**66.2**	**68.8**	**66.9**	**67.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM-TP15_0.5-1.0	A-TP05_0.04-0.2	A-TP05_0.9-1.0	ACM-TP01_0.7-1.3	ACM-TP01_0.5-0.7
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-003	ES2410587-008	ES2410587-009	ES2410587-012	ES2410587-014
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**84.1**	**84.0**	**80.2**	**80.4**	**81.8**
Anthracene-d10	1719-06-8	0.5	%		**89.1**	**89.8**	**92.8**	**91.8**	**91.9**
4-Terphenyl-d14	1718-51-0	0.5	%		**80.5**	**82.2**	**81.9**	**82.8**	**80.5**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**80.8**	**74.0**	**75.6**	**89.1**	**86.3**
Toluene-D8	2037-26-5	0.2	%		**85.3**	**81.5**	**82.3**	**95.1**	**88.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**95.5**	**89.5**	**92.9**	**104**	**97.7**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	15.4	17.6	12.0	14.4
EA155: Foreign Material - Type III									
Rubber	----	0.05	%		<0.05	----	----	----	----
Plastic	----	0.05	%		<0.05	----	----	----	----
Bitumen	----	0.05	%		<0.05	----	----	----	----
Paint	----	0.05	%		<0.05	----	----	----	----
Paper and Cardboard	----	0.05	%		<0.05	----	----	----	----
Cloth	----	0.05	%		<0.05	----	----	----	----
Wood	----	0.05	%		<0.05	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	No	----	No	----
Asbestos (Trace)	1332-21-4	-	-		----	No	----	No	----
Asbestos Type	1332-21-4	-	--		----	-	----	-	----
Synthetic Mineral Fibre	----	-	--		----	No	----	No	----
Organic Fibre	----	-	--		----	No	----	No	----
Sample weight (dry)	----	0.01	g		----	320	----	358	----
APPROVED IDENTIFIER:	----	-	--		----	B.SCHRADER	----	B.SCHRADER	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	6	5	<5	<5
Cadmium	7440-43-9	1	mg/kg		----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		----	18	15	9	14
Copper	7440-50-8	5	mg/kg		----	5	<5	<5	8
Lead	7439-92-1	5	mg/kg		----	8	5	8	6
Nickel	7440-02-0	2	mg/kg		----	4	<2	3	2
Zinc	7440-66-6	5	mg/kg		----	12	<5	8	10
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	<0.1	<0.1	<0.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	<5	<5	<5	<5
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	<5	<5
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	<5	<5
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	<5	<5
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	<5	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	<5	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Pentachloroethane	76-01-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Hexachlorobutadiene	87-68-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	<0.5	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	<1	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	<1	<1
EP074S: VOC Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	A-TP05_0.4-0.9	BH28/GW28_0.3-0.4	BH28/GW28_2.8-2.9	BH29/GW29_0.4-0.5	BH29/GW29_1.7-1.8
				Sampling date / time	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00	26-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410587-020	ES2410587-023	ES2410587-026	ES2410587-028	ES2410587-030
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	95.3	102	94.5	97.9
Toluene-D8	2037-26-5	0.5	%		----	90.4	93.1	81.0	90.0
4-Bromofluorobenzene	460-00-4	0.5	%		----	102	101	91.3	95.0
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	86.2	87.7	82.4	86.1
2-Chlorophenol-D4	93951-73-6	0.5	%		----	89.6	86.7	87.2	87.8
2.4.6-Tribromophenol	118-79-6	0.5	%		----	67.9	65.2	65.7	64.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	82.9	81.5	82.4	81.3
Anthracene-d10	1719-06-8	0.5	%		----	93.0	91.0	91.2	89.4
4-Terphenyl-d14	1718-51-0	0.5	%		----	81.3	80.9	81.1	83.5
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	83.9	90.2	83.6	86.3
Toluene-D8	2037-26-5	0.2	%		----	92.7	95.4	83.1	92.3
4-Bromofluorobenzene	460-00-4	0.2	%		----	102	102	90.2	97.6

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QC100_20240326	Trip Blank	Trip Spike 17	Trip Control Spike 17	----
			Sampling date / time	26-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2410587-032	ES2410587-034	ES2410587-035	ES2410587-036	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.3**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**9**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**26**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**5**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**9**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**4**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**9**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240326	Trip Blank	Trip Spike 17	Trip Control Spike 17	----
				Sampling date / time	26-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2410587-032	ES2410587-034	ES2410587-035	ES2410587-036	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**4.9**	**5.2**	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**5.5**	**5.9**	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**6.1**	**6.5**	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**2.5**	**2.7**	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	**19.0**	**20.3**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QC100_20240326	Trip Blank	Trip Spike 17	Trip Control Spike 17	----
				Sampling date / time	26-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	18-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2410587-032	ES2410587-034	ES2410587-035	ES2410587-036	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**8.6**	**9.2**	**----**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**82.7**	**----**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**84.8**	**----**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**63.8**	**----**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**81.4**	**----**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**93.1**	**----**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**81.0**	**----**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**89.5**	**97.1**	**94.3**	**87.9**	**----**
Toluene-D8	2037-26-5	0.2	%		**95.4**	**104**	**96.3**	**90.9**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**103**	**108**	**106**	**100**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240326	----	----	----	----
				Sampling date / time	26-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410587-033	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240326	----	----	----	----
				Sampling date / time	26-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410587-033	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**20.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240326	----	----	----	----
				Sampling date / time	26-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410587-033	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		**29.6**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**21.7**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**65.5**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**72.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**69.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**127**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**116**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**112**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	A-TP05_0.04-0.2 - 26-Mar-2024 00:00	A soil sample.
EA200: Description	ACM-TP01_0.5-0.7 - 26-Mar-2024 00:00	A soil sample.
EA200: Description	BH28/GW28_0.3-0.4 - 26-Mar-2024 00:00	A soil sample.
EA200: Description	BH29/GW29_0.4-0.5 - 26-Mar-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material - Type III

QUALITY CONTROL REPORT

Work Order	: **ES2410587**	Page	: 1 of 17
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 04-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: GEOTECH TEAM		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 36		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5704323)									
ES2410444-012	Anonymous	EG005T: Zinc	7440-66-6	5	mg/kg	150	138	7.8	0% - 20%
ES2410444-012	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2	78.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	18	22	22.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	3	5	37.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	46	81.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	108	112	3.7	0% - 20%
ES2410587-003	ACM-TP15_0.5-1.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	5.6	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	23	23	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5704329)									
ES2410444-014	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	21.8	23.2	5.9	0% - 20%
ES2410587-012	ACM-TP01_0.7-1.3	EA055: Moisture Content	----	0.1 (1.0)*	%	14.0	14.9	6.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5704322)									
ES2410444-012	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.2	54.3	No Limit
ES2410587-003	ACM-TP15_0.5-1.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5704036)									
ES2410587-008	A-TP05_0.04-0.2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5704035)									
ES2410587-008	A-TP05_0.04-0.2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5704035)									
ES2410587-008	A-TP05_0.04-0.2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5704035) - continued									
ES2410587-008	A-TP05_0.04-0.2	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5703163)									
ES2410587-023	BH28/GW28_0.3-0.4	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5703163)									
ES2410587-023	BH28/GW28_0.3-0.4	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5703163) - continued									
ES2410587-023	BH28/GW28_0.3-0.4	EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5703163)									
ES2410587-023	BH28/GW28_0.3-0.4	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5703163)									
ES2410587-023	BH28/GW28_0.3-0.4	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5704033)									
ES2410587-008	A-TP05_0.04-0.2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5704033)									
ES2410587-008	A-TP05_0.04-0.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5704033) - continued									
ES2410587-008	A-TP05_0.04-0.2	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5703162)									
ES2410544-033	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2410587-023	BH28/GW28_0.3-0.4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5704034)									
ES2410587-008	A-TP05_0.04-0.2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	100	120	12.7	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5703162)									
ES2410544-033	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2410587-023	BH28/GW28_0.3-0.4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5704034)									
ES2410587-008	A-TP05_0.04-0.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	110	120	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	110	110	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5703162)									
ES2410544-033	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 5703162) - continued									
ES2410544-033	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2410587-023	BH28/GW28_0.3-0.4	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5705911)									
ES2409505-017	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.036	0.036	0.0	No Limit
ES2410437-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.071	0.066	7.5	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5706018)									
ES2409505-017	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2410437-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2410397-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5703486)									
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5703486) - continued									
CA2402045-005	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2410397-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5704323)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	107	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.48 mg/kg	112	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	131	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	99.4	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	106	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.3	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5704322)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	102	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5704036)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	84.8	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5704035)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	75.1	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	76.6	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	80.1	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5704035) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	91.0	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	76.2	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5704035)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	87.2	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	76.2	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	75.7	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	76.8	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	77.6	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	65.0	41.0	123
EP074D: Fumigants (QCLot: 5703163)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	87.2	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	99.6	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	95.5	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	96.0	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	99.2	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5703163)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	80.6	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	79.6	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	90.9	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	77.1	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5703163) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	83.3	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	91.6	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	85.7	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	84.1	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	85.2	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	94.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.2	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	93.7	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	90.0	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	87.2	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	101	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	92.6	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	99.1	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	102	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	103	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	85.8	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	90.7	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	96.7	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	108	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	104	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	89.5	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	103	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	82.0	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5703163)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	93.5	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	89.5	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	89.4	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	88.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	91.1	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	91.2	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	92.7	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	87.4	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	97.7	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5703163)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	98.0	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	99.8	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	98.0	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	95.7	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5704033)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	89.6	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	92.8	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	97.2	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	94.5	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	84.8	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	96.4	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	95.6	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	91.7	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.0	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	78.8	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	79.1	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	42.9	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5704033)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.4	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	99.0	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	91.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.5	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	92.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	103	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.5	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.7	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	88.9	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.0	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	90.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	86.3	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5704033) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	88.9	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703162)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	113	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5704034)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	97.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.3	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.7	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703162)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	114	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5704034)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	95.7	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	96.3	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	100	63.0	131
EP080: BTEXN (QCLot: 5703162)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	112	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	115	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	118	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	117	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	118	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	100	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5705911)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.3	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.5	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706018)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.5	77.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5703998)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	70.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	82.4	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	76.5	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	67.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	87.0	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	93.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	94.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	78.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	79.6	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	89.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	80.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	69.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	85.9	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	69.7	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	83.7	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	87.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.7	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5704001)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	83.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.8	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	94.1	58.3	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5704001)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	62.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	74.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	64.9	50.5	115
EP080: BTEXN (QCLot: 5703486)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.6	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	95.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	73.0	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5703486) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5704323)							
ES2410444-012	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	117	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	117	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	116	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5704322)							
ES2410444-012	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	109	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5704036)							
ES2410587-008	A-TP05_0.04-0.2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	102	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5704035)							
ES2410587-008	A-TP05_0.04-0.2	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	80.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	81.6	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	78.0	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	90.7	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	89.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	85.5	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5704035)							
ES2410587-008	A-TP05_0.04-0.2	EP068: Diazinon	333-41-5	0.5 mg/kg	78.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	79.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	77.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	78.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	92.5	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5703163)							
ES2410587-023	BH28/GW28_0.3-0.4	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	78.0	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5703163) - continued							
ES2410587-023	BH28/GW28_0.3-0.4	EP074: Trichloroethene	79-01-6	2.5 mg/kg	90.9	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5703163)							
ES2410587-023	BH28/GW28_0.3-0.4	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	94.8	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5704033)							
ES2410587-008	A-TP05_0.04-0.2	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.1	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	96.5	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	91.9	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	67.6	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5704033)							
ES2410587-008	A-TP05_0.04-0.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	87.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703162)							
ES2410544-033	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	113	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5704034)							
ES2410587-008	A-TP05_0.04-0.2	EP071: C10 - C14 Fraction	----	480 mg/kg	108	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	109	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	113	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703162)							
ES2410544-033	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	114	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5704034)							
ES2410587-008	A-TP05_0.04-0.2	EP071: >C10 - C16 Fraction	----	860 mg/kg	95.3	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	112	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	106	52.0	132
EP080: BTEXN (QCLot: 5703162)							
ES2410544-033	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	109	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	110	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	114	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	121	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	114	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	98.6	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5705911)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5705911) - continued							
ES2410395-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	118	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.5	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	# Not Determined	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	# Not Determined	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5706018)							
ES2410150-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	79.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	77.6	70.0	130
EP080: BTEXN (QCLot: 5703486)							
CA2402045-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	100	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	95.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	93.0	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	96.4	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	106	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2410587**	Page	: 1 of 11
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 27-Mar-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: GEOTECH TEAM	No. of samples received	: 36
Order number	: 60709736	No. of samples analysed	: 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG020T: Total Metals by ICP-MS	ES2410395--001	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG020T: Total Metals by ICP-MS	ES2410395--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / **Container** / Client Sample ID(s)		*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EP074D: Fumigants							
Soil Glass Jar - Unpreserved							
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8						
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved							
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8						
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved							
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8						
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved							
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	04-Apr-2024	02-Apr-2024	**2**	04-Apr-2024	02-Apr-2024	**2**
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8						
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved							
Trip Blank		04-Apr-2024	01-Apr-2024	**3**	04-Apr-2024	01-Apr-2024	**3**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved							
Trip Blank		04-Apr-2024	01-Apr-2024	**3**	04-Apr-2024	01-Apr-2024	**3**
EP080: BTEXN							
Soil Glass Jar - Unpreserved							
Trip Blank,	Trip Spike - 17	04-Apr-2024	01-Apr-2024	**3**	04-Apr-2024	01-Apr-2024	**3**
Soil Glass Jar - Unpreserved							
Trip Control Spike - 17		04-Apr-2024	01-Apr-2024	**3**	05-Apr-2024	01-Apr-2024	**4**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240326	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
QC300_20240326	04-Apr-2024	02-Apr-2024	**2**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
QC300_20240326	04-Apr-2024	02-Apr-2024	**2**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
ACM-TP15_0.5-1.0, A-TP05_0.04-0.2, A-TP05_0.9-1.0, ACM-TP01_0.7-1.3, ACM-TP01_0.5-0.7, BH28/GW28_0.3-0.4, BH28/GW28_2.8-2.9, BH29/GW29_0.4-0.5, BH29/GW29_1.7-1.8, QC100_20240326	**26-Mar-2024**	**----**	----	----	**04-Apr-2024**	09-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA155: Foreign Material - Type III								
Snap Lock Bag (EA155)								
A-TP05_0.4-0.9		**26-Mar-2024**	**----**	----	**----**	**08-Apr-2024**	22-Sep-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)								
A-TP05_0.04-0.2,	ACM-TP01_0.5-0.7,	**26-Mar-2024**	**----**	----	**----**	**05-Apr-2024**	22-Sep-2024	✓
BH28/GW28_0.3-0.4,	BH29/GW29_0.4-0.5							
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	22-Sep-2024	✓	**04-Apr-2024**	22-Sep-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8,	QC100_20240326							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	23-Apr-2024	✓	**05-Apr-2024**	23-Apr-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8,	QC100_20240326							
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
A-TP05_0.04-0.2,	A-TP05_0.9-1.0,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
ACM-TP01_0.7-1.3,	ACM-TP01_0.5-0.7							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
A-TP05_0.04-0.2,	A-TP05_0.9-1.0,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
ACM-TP01_0.7-1.3,	ACM-TP01_0.5-0.7							
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
A-TP05_0.04-0.2,	A-TP05_0.9-1.0,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
ACM-TP01_0.7-1.3,	ACM-TP01_0.5-0.7							
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074)								
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8							
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074)								
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8							
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074)								
BH28/GW28_0.3-0.4,	BH28/GW28_2.8-2.9,	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	02-Apr-2024	×
BH29/GW29_0.4-0.5,	BH29/GW29_1.7-1.8							
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8,	QC100_20240326							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
Trip Blank		**18-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080)								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8,	QC100_20240326							
Soil Glass Jar - Unpreserved (EP071)								
ACM-TP15_0.5-1.0,	A-TP05_0.04-0.2,	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
A-TP05_0.9-1.0,	ACM-TP01_0.7-1.3,							
ACM-TP01_0.5-0.7,	BH28/GW28_0.3-0.4,							
BH28/GW28_2.8-2.9,	BH29/GW29_0.4-0.5,							
BH29/GW29_1.7-1.8,	QC100_20240326							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Trip Blank	**18-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080)							
ACM-TP15_0.5-1.0, A-TP05_0.04-0.2, A-TP05_0.9-1.0, ACM-TP01_0.7-1.3, ACM-TP01_0.5-0.7, BH28/GW28_0.3-0.4, BH28/GW28_2.8-2.9, BH29/GW29_0.4-0.5, BH29/GW29_1.7-1.8, QC100_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071)							
ACM-TP15_0.5-1.0, A-TP05_0.04-0.2, A-TP05_0.9-1.0, ACM-TP01_0.7-1.3, ACM-TP01_0.5-0.7, BH28/GW28_0.3-0.4, BH28/GW28_2.8-2.9, BH29/GW29_0.4-0.5, BH29/GW29_1.7-1.8, QC100_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**05-Apr-2024**	14-May-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Trip Blank, Trip Spike - 17	**18-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**04-Apr-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080)							
Trip Control Spike - 17	**18-Mar-2024**	**04-Apr-2024**	01-Apr-2024	×	**05-Apr-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP080)							
ACM-TP15_0.5-1.0, A-TP05_0.04-0.2, A-TP05_0.9-1.0, ACM-TP01_0.7-1.3, ACM-TP01_0.5-0.7, BH28/GW28_0.3-0.4, BH28/GW28_2.8-2.9, BH29/GW29_0.4-0.5, BH29/GW29_1.7-1.8, QC100_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
QC300_20240326	**26-Mar-2024**	**05-Apr-2024**	22-Sep-2024	✓	**05-Apr-2024**	22-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
QC300_20240326	**26-Mar-2024**	**----**	----	----	**08-Apr-2024**	23-Apr-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**04-Apr-2024**	14-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	02-Apr-2024	×	**05-Apr-2024**	14-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240326	**26-Mar-2024**	**04-Apr-2024**	09-Apr-2024	✓	**04-Apr-2024**	09-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	4	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Foreign Material Content	EA155	SOIL	In house: Referenced to RTA T276. Foreign Material Content
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2410587**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: GEOTECH TEAM		

Dates

Date Samples Received	: 27-Mar-2024 20:11	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 08-Apr-2024	Scheduled Reporting Date	: **08-Apr-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 4	Temperature	: 3.5, 3.4, 2.8'C
Receipt Detail	: 4 eskies + 17 FMT bags	No. of samples received / analysed	: 36 / 15

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **MIS-SOL: Coal Tar analysis will be conducted by Envirolab**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample QC200_20240326 will be forwarded to Eurofins.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2410587-036 : [18-Mar-2024] : Trip Control Spike - 17

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA155-ENM NSW DECC Excavated Natural Materials	SOIL - EA200 Asbestos Identification in Soils -	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2410587-001	26-Mar-2024 00:00	ACM-TP15_1.7-2.1	✓						
ES2410587-002	26-Mar-2024 00:00	ACM-TP15_0.2-0.5	✓						
ES2410587-003	26-Mar-2024 00:00	ACM-TP15_0.5-1.0		✓					✓
ES2410587-004	26-Mar-2024 00:00	ACM-TP15_0.04-0.2	✓						
ES2410587-005	26-Mar-2024 00:00	ACM-TP15_0.0-0.01					✓		
ES2410587-006	26-Mar-2024 00:00	ACM-TP15_1.2-1.7	✓						
ES2410587-007	26-Mar-2024 00:00	A-TP05_0.4-0.9	✓						
ES2410587-008	26-Mar-2024 00:00	A-TP05_0.04-0.2		✓		✓		✓	
ES2410587-009	26-Mar-2024 00:00	A-TP05_0.9-1.0		✓				✓	
ES2410587-010	26-Mar-2024 00:00	A-TP05_0.0-0.04					✓		
ES2410587-011	26-Mar-2024 00:00	ACM-TP01_0.0-0.05					✓		
ES2410587-012	26-Mar-2024 00:00	ACM-TP01_0.7-1.3		✓				✓	
ES2410587-013	26-Mar-2024 00:00	ACM-TP01_0.09-0.3	✓						
ES2410587-014	26-Mar-2024 00:00	ACM-TP01_0.5-0.7		✓		✓		✓	
ES2410587-015	26-Mar-2024 00:00	ACM-TP15_1.7-2.1	✓						
ES2410587-016	26-Mar-2024 00:00	ACM-TP15_0.2-1.7	✓						
ES2410587-017	26-Mar-2024 00:00	ACM-TP15_0.04-0.2	✓						
ES2410587-018	26-Mar-2024 00:00	ACM-TP01_0.09-0.7	✓						
ES2410587-019	26-Mar-2024 00:00	ACM-TP01_0.7-1.3	✓						
ES2410587-020	26-Mar-2024 00:00	A-TP05_0.4-0.9			✓				
ES2410587-021	26-Mar-2024 00:00	A-TP05_0.05-0.4	✓						
ES2410587-022	26-Mar-2024 00:00	A-TP05_0.9-1.2	✓						
ES2410587-023	26-Mar-2024 00:00	BH28/GW28_0.3-0.4		✓		✓			✓
ES2410587-024	26-Mar-2024 00:00	BH28/GW28_0.8-0.9	✓						
ES2410587-025	26-Mar-2024 00:00	BH28/GW28_1.3-1.4	✓						
ES2410587-026	26-Mar-2024 00:00	BH28/GW28_2.8-2.9		✓					✓
ES2410587-027	26-Mar-2024 00:00	BH28/GW28_0.8-0.9	✓						
ES2410587-028	26-Mar-2024 00:00	BH29/GW29_0.4-0.5		✓		✓			✓
ES2410587-029	26-Mar-2024 00:00	BH29/GW29_1.2-1.3	✓						
ES2410587-030	26-Mar-2024 00:00	BH29/GW29_1.7-1.8		✓					✓
ES2410587-031	26-Mar-2024 00:00	BH29/GW29_2.8-2.9	✓						
ES2410587-032	26-Mar-2024 00:00	QC100_20240326		✓					

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP080 BTEXN	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2410587-023	26-Mar-2024 00:00	BH28/GW28_0.3-0.4	✓			
ES2410587-026	26-Mar-2024 00:00	BH28/GW28_2.8-2.9	✓			
ES2410587-028	26-Mar-2024 00:00	BH29/GW29_0.4-0.5	✓			
ES2410587-030	26-Mar-2024 00:00	BH29/GW29_1.7-1.8	✓			
ES2410587-032	26-Mar-2024 00:00	QC100_20240326				✓
ES2410587-034	18-Mar-2024 00:00	Trip Blank			✓	
ES2410587-035	18-Mar-2024 00:00	Trip Spike 17		✓		
ES2410587-036	18-Mar-2024 00:00	Trip Control Spike ...		✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES2410587-033	26-Mar-2024 00:00	QC300_20240326	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

(SOIL) EA155: Foreign Material - Type III

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 348062

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2410587**
Number of Samples	3 Coal Tar
Date samples received	04/04/2024
Date completed instructions received	04/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	11/04/2024
Date of Issue	08/04/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar				
Our Reference		348062-1	348062-2	348062-3
Your Reference	UNITS	20240326_ACM_TP15_0.0-0.01m	20240326_A_TP05_0.0-0.04m	20240326_ACM_TP01_0.0-0.05m
Type of sample		Coal Tar	Coal Tar	Coal Tar
Date prepared	-	05/04/2024	05/04/2024	05/04/2024
Date analysed	-	04/05/2024	04/05/2024	04/05/2024
Presence of Coal Tar*	-	Absent	Absent	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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AECOM

Q4AN(EV)-007-FM1

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GROTBCH TEAM	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.sertas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	COAL TAR	ASBESTOS (ID/Q)	FOREIGN MAT. (DENM ASS)	TRH/BTEX	PAH/Smears	PHENOLS	OCP/OPP/PCB	HOLD
20240326	ACM-TP15-1.7-2.1m	S	26/03/24		1xJAR+1xBAG									X
2 20240326	ACM-TP15-0.2-0.5m	S	26/03/24		1xJAR+1xBAG									X
3	ACM-TP15-0.5-1.0m	S	26/03/24		1xJAR+1xBAG					X	X	X		X
4	ACM-TP15-0-0.2m	S	26/03/24		1xJAR+1xBAG									X
5	ACM-TP15-0-0.01m	S	26/03/24		1xJAR	*COLD	TAR	X						X
6	ACM-TP15-1.2-1.7m	S	26/03/24		1xBAG									X
7	A-TP05-0.4-0.9m	S	26/03/24		1xJAR+1xBAG									X
8	A-TP05-0.04-0.2m	S	26/03/24		1xJAR+1xBAG			X		X	X	X	X	X
9	A-TP05-0.9-1.0m	S	26/03/24		1xJAR+1xBAG					X	X	X	X	X
10	A-TP05-0-0.04m	S	26/03/24		1xJAR	*COLD	TAR							X
11	ACM-TP01-0-0.05m	S	26/03/24		1xJAR	*COLD	TAR							X
12	ACM-TP01-0.7-1.3m	S	26/03/24		1xJAR+1xBAG					X	X	X	X	X
13	ACM-TP01-0.09-0.3	S	26/03/24		1xJAR+1xBAG									X
14	ACM-TP01-0.5-0.7m	S	26/03/24		1xJAR+1xBAG			X		X	X	X	X	X
15	ACM-TP15-1.7-2.1m	S	26/03/24		1xBULK BAG									X
16	ACM-TP15-0.2-1.7m	S	26/03/24		1xBULK BAG									X
17	ACM-TP15-0.04-0.2m	S	26/03/24		1xBULK BAG									X
18	ACM-TP01-0.09-0.7m	S	26/03/24		1xBULK BAG									X
19	ACM-TP01-0.7-1.3m	S	26/03/24		1xBULK BAG									X
20	A-TP05-0.4-0.9m	S	26/03/24		1xBULK BAG				X					X
21	A-TP05-0.05-0.4m	S	26/03/24		1xBULK BAG									X

Subcon / Forward Early / Split WO:
Lab / Analysis: Newcastle - Asbestos, FMP
Organised By / Date: Eurofins - Coal Tar
Relinquished By / Date: Eurofins - QC20 20240326
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD C
Name:	Date:	Name:	Date:	Name: WONG	Date: 27/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: ALS	Time: 2011	Transport Co:

Environmental Division Sydney
Work Order Reference
ES2410587

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 3

PAGE 2

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GEOTECH TEAM	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION			
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles		HOLD
22 20240326	ATP05 -0.9-1.2m	S	26/03/24	S	1x BULKBAG			X

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: NDS	Date: 27/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: ALS	Time: 1011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

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AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Eric Serttas	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Asbestos AP/I	TRH/UTEXN PAH/8metals	PHENOLS	CHCs	C6-C9 BTEXN							HOLD	
23	BH28_0.3-0.4	S	26/3	PM	J, AG	1,1	X	X	X	X									
24	-0.8-0.9																	X	
25	-1.7-1.8																	X	
26	-2.8-2.9							X	X	X									
27	BH28(B)_0.8-0.9																	X	
28	BH29_0.4-0.5						X	X	X	X									
29	-1.2-1.3																	X	
30	-1.7-1.8							X	X	X									
31	-2.8-2.9																	X	
32	QC100-20240326							X											
FW 0	QC200-20240326	↓			↓	↓		X											→ QC200 to be
33	QC300-20240326	W	↓	↓	V, AG, P	2,1,1		X											sent to
34	TRIP BLANK	S	Lab prepared		J	1					X								ENVIROLABS
35	TRIP SPIKE	↓	↓		↓	1					X	X							
36	Trip Control Spike																		

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 27/3/24	Name:	Date:	Name: [illegible]	Date: 27/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: ALS	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 3

CERTIFICATE OF ANALYSIS

Work Order	: **ES2410959**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 04-Apr-2024 18:15
Order number	: 60709736 -	Date Analysis Commenced	: 08-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:28
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 16		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP071: Results of sample BH02_1.3-1.4 have been confirmed by re-extraction and re-analysis.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-006, 009, 012-013. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH02A_0.6-0.7	BH02A_2.8-2.9	TRIP BLANK	TRIP SPIKE	TSC18
				Sampling date / time	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410959-003	ES2410959-006	ES2410959-014	ES2410959-015	ES2410959-016
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**18.4**	**22.6**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		**23**	**18**	----	----	----
Copper	7440-50-8	5	mg/kg		**11**	**15**	----	----	----
Lead	7439-92-1	5	mg/kg		**13**	**14**	----	----	----
Nickel	7440-02-0	2	mg/kg		**3**	**2**	----	----	----
Zinc	7440-66-6	5	mg/kg		**24**	**16**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		**1.5**	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH02A_0.6-0.7	BH02A_2.8-2.9	TRIP BLANK	TRIP SPIKE	TSC18
				Sampling date / time	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410959-003	ES2410959-006	ES2410959-014	ES2410959-015	ES2410959-016
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**6.0**	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		**1.2**	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**15.2**	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**13.2**	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**5.2**	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**5.2**	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**7.0**	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**3.1**	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**6.3**	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**3.7**	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		**0.7**	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**4.5**	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**72.8**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**9.0**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**9.0**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**9.0**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**150**	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		**150**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH02A_0.6-0.7	BH02A_2.8-2.9	TRIP BLANK	TRIP SPIKE	TSC18
				Sampling date / time	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410959-003	ES2410959-006	ES2410959-014	ES2410959-015	ES2410959-016
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**210**	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**210**	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	**0.2**
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**6.2**	**7.6**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**7.3**	**9.0**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**6.3**	**7.7**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**2.1**	**2.6**
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	**21.9**	**27.1**
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	**8.4**	**10.3**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**84.4**	**82.9**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**91.2**	**88.6**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.3**	**78.3**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**91.8**	**93.3**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**104**	**98.8**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**106**	**108**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**84.8**	**84.3**	**88.9**	**84.9**	**94.2**
Toluene-D8	2037-26-5	0.2	%		**97.4**	**90.9**	**98.8**	**96.4**	**103**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH02A_0.6-0.7	BH02A_2.8-2.9	TRIP BLANK	TRIP SPIKE	TSC18
				Sampling date / time	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2410959-003	ES2410959-006	ES2410959-014	ES2410959-015	ES2410959-016
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**92.4**	**86.4**	**95.3**	**95.9**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240403	----	----	----	----
				Sampling date / time	03-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410959-007	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240403	----	----	----	----
				Sampling date / time	03-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410959-007	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240403	----	----	----	----
				Sampling date / time	03-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2410959-007	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**23.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**52.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**56.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**60.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**69.3**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**70.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**101**	----	----	----	----
Toluene-D8	2037-26-5	2	%		**97.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**84.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2410959**	Page	: 1 of 12
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 04-Apr-2024
Order number	: 60709736 -	Date Analysis Commenced	: 08-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 16		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5714243)									
ES2410592-109	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	15	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	5	<5	0.0	No Limit
ES2410816-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	16	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	21	21	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	13	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	66	63	5.4	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5714250)									
ES2410592-111	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	20.4	21.5	5.1	0% - 20%
ES2410816-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	9.8	10.0	1.5	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5714251)									
ES2411077-002	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	15.1	16.3	7.2	0% - 50%
EW2401606-005	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	9.7	9.9	2.2	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5714244)									
ES2410592-109	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2410816-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5710775)									
ES2410592-062	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2410816-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5710775)									
ES2410592-062	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5710775) - continued									
ES2410592-062	Anonymous	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2410816-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5710776)									
ES2410592-062	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2410816-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5711167)									
ES2410739-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EW2401606-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5710776)									
ES2410592-062	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2410816-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5711167)									
ES2410739-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EW2401606-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5711167)									
ES2410739-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EW2401606-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5716681)									
ES2410949-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.019	0.012	43.2	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5716681) - continued									
ES2411262-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0004	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.490	0.486	0.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.973	0.957	1.7	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5718443)									
ES2410884-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2411011-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5710947)									
ES2410940-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2410947-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5710947)									
ES2410940-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2410947-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5710947)									
ES2410940-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2410947-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	2	2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5714243)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	97.3	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	98.4	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	112	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	99.8	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	96.3	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	95.1	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	100	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5714244)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	81.2	70.0	125
EP075(SIM)A: Phenolic Compounds (QCLot: 5710775)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	92.8	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	96.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	96.2	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	96.0	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	85.0	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	89.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	93.2	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	89.4	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.8	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	86.3	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	87.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	44.8	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5710775)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	96.3	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.4	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.3	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.2	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	102	73.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5710775) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.7	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.4	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	90.9	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.2	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	94.6	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	99.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	96.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	90.4	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	93.8	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5710776)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	111	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	102	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5711167)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	81.0	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5710776)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	105	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	102	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	104	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5711167)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	80.5	72.4	133
EP080: BTEXN (QCLot: 5711167)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	98.6	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	96.4	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.7	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	90.0	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	116	78.8	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5716681)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.3	82.0	114

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5716681) - continued								
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.3	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.0	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.2	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5718443)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	108	77.0	111
EP075(SIM)A: Phenolic Compounds (QCLot: 5710746)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	34.5	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	68.9	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	58.4	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	54.2	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	74.4	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	66.6	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	64.3	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	67.4	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	64.3	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	74.7	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	97.4	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	32.5	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5710746)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	70.0	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	77.5	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	78.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	75.1	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	69.3	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	73.7	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	77.7	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	78.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	81.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	90.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	68.8	61.7	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5710746) - continued								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	93.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	83.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	63.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	75.6	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.2	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5710747)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	66.7	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	77.3	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	77.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5710947)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5710747)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.0	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	68.7	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	83.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5710947)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.5	75.0	127
EP080: BTEXN (QCLot: 5710947)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	103	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	104	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	110	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5714243)							
ES2410592-109	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	91.0	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5714243) - continued							
ES2410592-109	Anonymous	EG005T: Cadmium	7440-43-9	50 mg/kg	94.9	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.1	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	95.5	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.1	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	95.0	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5714244)							
ES2410592-109	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.0	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5710775)							
ES2410816-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.6	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	88.7	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	84.1	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	85.2	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	63.5	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5710775)							
ES2410816-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5710776)							
ES2410816-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	114	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	125	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	112	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5711167)							
ES2410739-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	73.0	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5710776)							
ES2410816-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	116	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	122	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	120	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5711167)							
ES2410739-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	71.3	61.1	142
EP080: BTEXN (QCLot: 5711167)							
ES2410739-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	88.1	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	85.4	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.4	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	80.4	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.2	70.7	121

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 5711167) - continued							
ES2410739-001	Anonymous	EP080: Naphthalene	91-20-3	2.5 mg/kg	97.2	61.1	115

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5716681)							
ES2410949-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.5	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	96.8	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	102	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.8	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.4	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5718443)							
ES2410884-004	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	93.6	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5710947)							
ES2410940-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	74.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5710947)							
ES2410940-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	72.4	70.0	130
EP080: BTEXN (QCLot: 5710947)							
ES2410940-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	91.9	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	86.1	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	86.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	83.1	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.5	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	88.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2410959**	Page	: 1 of 7
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 04-Apr-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: Eric Serttas	No. of samples received	: 16
Order number	: 60709736 -	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**----**	----	----	**09-Apr-2024**	17-Apr-2024	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	30-Sep-2024	✓	**10-Apr-2024**	30-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	01-May-2024	✓	**11-Apr-2024**	01-May-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	17-Apr-2024	✓	**10-Apr-2024**	19-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	17-Apr-2024	✓	**10-Apr-2024**	19-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK		**02-Apr-2024**	**08-Apr-2024**	16-Apr-2024	✓	**09-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**09-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071)								
BH02A_0.6-0.7,	BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	17-Apr-2024	✓	**09-Apr-2024**	19-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK	**02-Apr-2024**	**08-Apr-2024**	16-Apr-2024	✓	**09-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH02A_0.6-0.7, BH02A_2.8-2.9	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**09-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH02A_0.6-0.7, BH02A_2.8-2.9	**03-Apr-2024**	**09-Apr-2024**	17-Apr-2024	✓	**09-Apr-2024**	19-May-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE, TSC18	**02-Apr-2024**	**08-Apr-2024**	16-Apr-2024	✓	**09-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH02A_0.6-0.7, BH02A_2.8-2.9	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**09-Apr-2024**	17-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240403	**03-Apr-2024**	**10-Apr-2024**	30-Sep-2024	✓	**10-Apr-2024**	30-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240403	**03-Apr-2024**	**----**	----	**----**	**12-Apr-2024**	01-May-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240403	**03-Apr-2024**	**09-Apr-2024**	10-Apr-2024	✓	**10-Apr-2024**	19-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240403	**03-Apr-2024**	**09-Apr-2024**	10-Apr-2024	✓	**10-Apr-2024**	19-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240403	**03-Apr-2024**	**09-Apr-2024**	10-Apr-2024	✓	**09-Apr-2024**	19-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240403	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**08-Apr-2024**	17-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240403	**03-Apr-2024**	**09-Apr-2024**	10-Apr-2024	✓	**09-Apr-2024**	19-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240403	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**08-Apr-2024**	17-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240403	**03-Apr-2024**	**08-Apr-2024**	17-Apr-2024	✓	**08-Apr-2024**	17-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2410959**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDLRL 1100	Page	: 1 of 3
Order number	: 60709736 -	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 04-Apr-2024 18:15	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 12-Apr-2024	Scheduled Reporting Date	: **12-Apr-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 0.0, 0.2, 11.3 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 16 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Coal Tar analysis will be sub contracted to Envirolab.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2410959-001	03-Apr-2024 00:00	BH02A_0.6-0.7				✓		
ES2410959-002	03-Apr-2024 00:00	BH02A_0.6-0.7	✓					
ES2410959-003	03-Apr-2024 00:00	BH02A_0.6-0.7		✓				✓
ES2410959-004	03-Apr-2024 00:00	BH02A_0.6-0.7	✓					
ES2410959-005	03-Apr-2024 00:00	BH02A_0.6-0.7	✓					
ES2410959-006	03-Apr-2024 00:00	BH02A_2.8-2.9		✓				✓
ES2410959-008	02-Apr-2024 00:00	R_CO06_0.16-0.17	✓					
ES2410959-009	02-Apr-2024 00:00	R_CO06_0.29-0.3				✓		
ES2410959-010	02-Apr-2024 00:00	R_CO06_0.4-0.45				✓		
ES2410959-011	02-Apr-2024 00:00	R_CO05_0.22-0.27				✓		
ES2410959-012	04-Apr-2024 00:00	BH26/GW26_0.0-0.05				✓		
ES2410959-013	04-Apr-2024 00:00	BH27/GW27_0.0-0.05				✓		
ES2410959-014	02-Apr-2024 00:00	TRIP BLANK					✓	
ES2410959-015	02-Apr-2024 00:00	TRIP SPIKE			✓			
ES2410959-016	02-Apr-2024 00:00	TSC18			✓			

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2410959-007	03-Apr-2024 00:00	QC300_20240403	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE PIGRAM

- *AU Certificate of Analysis - NATA (COA)	Email	kate.pigram@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.pigram@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.pigram@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.pigram@aecom.com
- Attachment - Report (SUBCO)	Email	kate.pigram@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.pigram@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	kate.pigram@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.pigram@aecom.com

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 348276

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2410959**
Number of Samples	6 Soil
Date samples received	08/04/2024
Date completed instructions received	08/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	15/04/2024
Date of Issue	12/04/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar						
Our Reference		348276-1	348276-2	348276-3	348276-4	348276-5
Your Reference	UNITS	BH2_0.6-0.7	R_C006_0.29-0.30	R_C006_0.4-0.5	R_C005_0.22-0.27	BH26_0.03-0.06
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Date analysed	-	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Presence of Coal Tar*	-	Absent	Absent	Absent	Absent	Absent

Coal Tar		
Our Reference		348276-6
Your Reference	UNITS	BH27_0.04-0.08
Type of sample		Soil
Date prepared	-	10/04/2024
Date analysed	-	10/04/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Eric Serttas	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	COAL TAR	TEH/TEXN/PAH/8 METAL	PHENOLS	C6 - C9	BTEXN	HOLD
1	BH02_0.6-0.7	M	3/4/24	PM	J	1	X					
2	-0.9-1.0	S	↓	↓	J, ZLB	1,1						
3	-1.3-1.4				↓	↓		X	X			
4	-1.7-1.8											
5	-2.4-2.5											
6	-2.8-2.9							X	X			
7	QC300.20240403	W			V, AG, P	2,1,1		X	X			
8	R-C006-0.16-0.17	M	2/4/24	PM	J	1						
9	-0.29-0.30						X					
10	-0.4-0.45						X					
11	R-C005-0.22-0.27						X					
12	BH26-0.03-0.06		4/4/24				X					
13	BH27-0.04-0.08	↓	↓	↓	↓	↓	X					
14	TRIP BLANK	S	lab prep.		J	1				X		
15	TRIP SPIKE	↓	↓		↓	↓				X	X	
16	TSC 18	S	2/4/24									

Environmental Division Sydney
Work Order Reference
ES2410959

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 4/4/24	Name:	Date:	Name: Thanh La	Date: 4/4/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AES	Time: 1615	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION Type / Code	Total bottles	COAL TAR	TRH/BTEXN/ PAH/8 METAL	PHENOLS	C6 - C9	BTEXN	HOLD
1	BH02_0.6-0.7	M	3/4/24	PM	J	1	X					
2	-0.9-1.0	S			J, ZVOA	1,1						
3	-1.3-1.4							X	X			
4	-1.7-1.8											
5	-2.4-2.5											
6	-2.8-2.9							X	X			
7	QC300.20240403	W			V, A6, P	2, 1, 1		X	X			
8	R_CORE_0.16-0.17	M	2/4/24	PM	J	1						
9	-0.29-0.30						X					
10	-0.4-0.45						X					
11	R_CORE_0.22-0.27						X					
12	BH26_0.03-0.06		4/4/24				X					
13	BH27_0.04-0.08						X					
14	TRIP BLANK	S	lab prep.		J	1				X		
15	TRIP SPIKE									X	X	
16	TSC 18	S	2/4/24									

Environmental Division
Sydney
Work Order Reference
ES2410959

Telephone : +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 4/4/24	Name:	Date:	Name:	Date: 4/4/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AMS	Time: 1815	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

CERTIFICATE OF ANALYSIS

Work Order	: **ES2411530**	Page	: 1 of 29
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024 16:27
Order number	: 60709736 1.0	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:28
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 17		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 01-003, 017. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EP231X: Some samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
			Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	34.4	24.4	38.5	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos (Trace)	1332-21-4	-	-	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Synthetic Mineral Fibre	----	-	--	No	----	----	----	No
Organic Fibre	----	-	--	No	----	----	----	No
Sample weight (dry)	----	0.01	g	157	----	----	----	150
APPROVED IDENTIFIER:	----	-	--	B.SCHRADER	----	----	----	B.SCHRADER
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	6	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	----	26	17	29	----
Copper	7440-50-8	5	mg/kg	----	29	28	34	----
Lead	7439-92-1	5	mg/kg	----	24	16	26	----
Nickel	7440-02-0	2	mg/kg	----	13	<2	16	----
Zinc	7440-66-6	5	mg/kg	----	35	<5	40	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
				Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
				Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
			Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
				Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		----	<1	<1	<1	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.002	<0.002	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
				Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	<0.0005	<0.0005	<0.0002	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	**66.3**	**90.9**	**87.8**	----
Toluene-D8	2037-26-5	0.5	%		----	**70.0**	**84.8**	**83.4**	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	**78.7**	**89.4**	**86.2**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	**91.2**	**87.4**	**86.0**	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	**84.0**	**83.4**	**83.2**	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	**75.6**	**68.6**	**71.5**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	**84.1**	**81.4**	**80.1**	----
Anthracene-d10	1719-06-8	0.5	%		----	**92.5**	**90.3**	**89.5**	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	**89.3**	**85.9**	**84.6**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	**67.2**	**93.5**	**90.5**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH05_0.4-0.5	BH05_0.8-0.9	BH05_2.2-2.3	QC100_20240407	BH06_0.4-0.5
				Sampling date / time	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00	07-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-001	ES2411530-002	ES2411530-003	ES2411530-004	ES2411530-006
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		----	75.1	81.8	80.4	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	90.5	92.9	90.4	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		----	84.0	86.5	98.2	----
13C8-PFOA	----	0.0002	%		----	100	82.5	109	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		17.7	19.2	22.4	20.1	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		17	13	5	11	----
Copper	7440-50-8	5	mg/kg		13	8	<5	8	----
Lead	7439-92-1	5	mg/kg		12	9	<5	10	----
Nickel	7440-02-0	2	mg/kg		4	<2	2	<2	----
Zinc	7440-66-6	5	mg/kg		21	6	9	8	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	<5	<5	<5	----
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	<5	----
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	<5	----
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	<5	----
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
			Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg	----	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluoranthene	206-44-0	0.5	mg/kg		**0.7**	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		**0.7**	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**0.5**	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**1.9**	<0.5	<0.5	<0.5	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06_0.8-0.9	BH06_2.0-2.5	BH06_4.7-4.8	QC100_20240408	TRIP BLANK
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411530-007	ES2411530-008	ES2411530-010	ES2411530-011	ES2411530-012
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	87.6	83.6	90.9	----
Toluene-D8	2037-26-5	0.5	%		----	84.7	78.6	85.7	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	87.9	81.2	90.4	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.1	82.1	90.9	88.6	----
2-Chlorophenol-D4	93951-73-6	0.5	%		84.0	83.0	85.3	86.5	----
2.4.6-Tribromophenol	118-79-6	0.5	%		64.1	62.7	62.9	64.6	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		83.0	84.5	82.8	80.7	----
Anthracene-d10	1719-06-8	0.5	%		94.9	88.7	88.0	89.4	----
4-Terphenyl-d14	1718-51-0	0.5	%		88.3	81.0	82.8	85.5	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		103	90.1	86.1	93.7	113
Toluene-D8	2037-26-5	0.2	%		90.7	81.4	75.8	82.8	97.8
4-Bromofluorobenzene	460-00-4	0.2	%		83.1	91.5	84.4	94.0	91.8
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		108	100	103	104	----
13C8-PFOA	----	0.0002	%		108	103	104	106	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE	R_TP12_0.1-0.2	R_TP12_1.0-1.1	TSC 16	----
			Sampling date / time	02-Apr-2024 00:00	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2411530-013	ES2411530-014	ES2411530-015	ES2411530-016	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	16.5	17.5	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Synthetic Mineral Fibre	----	-	--	----	No	----	----	----
Organic Fibre	----	-	--	----	No	----	----	----
Sample weight (dry)	----	0.01	g	----	283	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	B.SCHRADER	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	----	23	9	----	----
Copper	7440-50-8	5	mg/kg	----	13	<5	----	----
Lead	7439-92-1	5	mg/kg	----	20	<5	----	----
Nickel	7440-02-0	2	mg/kg	----	6	3	----	----
Zinc	7440-66-6	5	mg/kg	----	21	<5	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE	R_TP12_0.1-0.2	R_TP12_1.0-1.1	TSC 16	----
			Sampling date / time	02-Apr-2024 00:00	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2411530-013	ES2411530-014	ES2411530-015	ES2411530-016	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE	R_TP12_0.1-0.2	R_TP12_1.0-1.1	TSC 16	----
			Sampling date / time	02-Apr-2024 00:00	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2411530-013	ES2411530-014	ES2411530-015	ES2411530-016	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	**1.3**	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	**0.6**	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**5.6**	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	**4.6**	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	**2.3**	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	**2.0**	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	**2.7**	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	**0.9**	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TRIP SPIKE	R_TP12_0.1-0.2	R_TP12_1.0-1.1	TSC 16	----
				Sampling date / time	02-Apr-2024 00:00	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	----
Compound	CAS Number	LOR	Unit		ES2411530-013	ES2411530-014	ES2411530-015	ES2411530-016	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	**2.2**	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	**1.2**	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	**1.6**	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		----	**25.0**	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		----	**2.9**	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		----	**3.2**	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		----	**3.4**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		----	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	<50	<50	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		**6.4**	<0.5	<0.5	**6.6**	----
Ethylbenzene	100-41-4	0.5	mg/kg		**7.2**	<0.5	<0.5	**7.8**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE	R_TP12_0.1-0.2	R_TP12_1.0-1.1	TSC 16	----
			Sampling date / time	02-Apr-2024 00:00	03-Apr-2024 00:00	03-Apr-2024 00:00	02-Apr-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2411530-013	ES2411530-014	ES2411530-015	ES2411530-016	--------
				Result	Result	Result	Result	----
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**7.2**	<0.5	<0.5	**8.3**	----
ortho-Xylene	95-47-6	0.5	mg/kg	**3.0**	<0.5	<0.5	**3.4**	----
^ **Sum of BTEX**	----	0.2	mg/kg	**23.8**	<0.2	<0.2	**26.1**	----
^ **Total Xylenes**	----	0.5	mg/kg	**10.2**	<0.5	<0.5	**11.7**	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	**110**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	**85.5**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	**104**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	**90.1**	**87.5**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	----	**87.9**	**80.2**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	----	**67.0**	**69.4**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	**83.0**	**82.9**	----	----
Anthracene-d10	1719-06-8	0.5	%	----	**91.9**	**92.7**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	----	**86.3**	**87.7**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**90.4**	**112**	**107**	**66.6**	----
Toluene-D8	2037-26-5	0.2	%	**92.7**	**95.1**	**83.1**	**81.6**	----
4-Bromofluorobenzene	460-00-4	0.2	%	**80.2**	**82.1**	**79.8**	**86.8**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240407	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411530-005	--------	--------	--------	--------
					Result	----	----	----	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		93.2	----	----	----	----
Toluene-D8	2037-26-5	5	%		99.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		94.7	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		28.0	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		43.9	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		37.4	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		92.3	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		82.7	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		78.9	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		80.8	----	----	----	----
Toluene-D8	2037-26-5	2	%		102	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		106	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		95.6	----	----	----	----
13C8-PFOA	----	0.02	%		95.8	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH05_0.4-0.5 - 07-Apr-2024 00:00	A soil sample.
EA200: Description	BH06_0.4-0.5 - 07-Apr-2024 00:00	A soil sample.
EA200: Description	R_TP12_0.1-0.2 - 03-Apr-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)T: PAH Surrogates - Continued			
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2411530**	Page	: 1 of 25
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 17		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5719950)									
ES2411530-002	BH05_0.8-0.9	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	25	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	14	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	29	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	24	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	35	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5719952)									
ES2411530-004	QC100_20240407	EA055: Moisture Content	----	0.1 (1.0)*	%	38.5	34.4	11.2	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5719951)									
ES2411530-002	BH05_0.8-0.9	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 5719822)									
ES2411530-015	R_TP12_1.0-1.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5719821)									
ES2411530-015	R_TP12_1.0-1.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5719821) - continued									
ES2411530-015	R_TP12_1.0-1.1	EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5719821)									
ES2411530-015	R_TP12_1.0-1.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP074D: Fumigants (QC Lot: 5719800)									
ES2411530-002	BH05_0.8-0.9	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5719800) - continued									
ES2411530-002	BH05_0.8-0.9	EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5719800)									
ES2411530-002	BH05_0.8-0.9	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5719800)									
ES2411530-002	BH05_0.8-0.9	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5719800) - continued									
ES2411530-002	BH05_0.8-0.9	EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5719800)									
ES2411530-002	BH05_0.8-0.9	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5719819)									
ES2411530-015	R_TP12_1.0-1.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5719819)									
ES2411530-015	R_TP12_1.0-1.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5719819) - continued									
ES2411530-015	R_TP12_1.0-1.1	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5719799)									
ES2411530-015	R_TP12_1.0-1.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5719820)									
ES2411530-015	R_TP12_1.0-1.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5719799)									
ES2411530-015	R_TP12_1.0-1.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5719820)									
ES2411530-015	R_TP12_1.0-1.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5719799)									
ES2411530-015	R_TP12_1.0-1.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5724591)									
EB2410572-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0006	0.0005	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5724591)									
EB2410572-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0004	0.0002	45.4	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0011	0.0007	41.1	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002 (0.0005)*	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001 (0.002) *	mg/kg	<0.002	<0.002	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5724591)									
EB2410572-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2411530-002	BH05_0.8-0.9	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5724591) - continued									
ES2411530-002	BH05_0.8-0.9	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5722549)									
ES2411527-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ME2400635-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.030	0.030	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.007	23.6	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5722515)									
ES2411414-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2411434-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP074D: Fumigants (QC Lot: 5720049)									
ES2411585-003	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5720049)									
ES2411585-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5720049) - continued									
ES2411585-003	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2411687-007	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5720049) - continued									
ES2411687-007	Anonymous	EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5720049)									
ES2411585-003	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5720049)									
ES2411585-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074G: Trihalomethanes (QC Lot: 5720049) - continued									
ES2411585-003	Anonymous	EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5720050)									
ES2411585-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2411687-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5720050)									
ES2411585-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2411687-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5720050)									
ES2411585-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5724742)									
EB2411961-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.12	0.12	0.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EB2411961-014	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.17	0.16	9.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5724742)									
EB2411961-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5724742) - continued									
EB2411961-003	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EB2411961-014	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5724742)									
EB2411961-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EB2411961-014	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5719950)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	109	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	92.6	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	121	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	103	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	102	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	101	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	97.4	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5719951)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	102	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5719822)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	85.2	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 5719821)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	67.0	119
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5719821) - continued								
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	87.8	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	90.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5719821)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.5	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	91.2	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.6	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.5	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.9	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	107	41.0	123
EP074D: Fumigants (QCLot: 5719800)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	91.3	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	94.3	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	91.4	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	90.3	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5719800)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	64.2	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	91.5	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	98.0	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	80.1	47.0	141

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5719800) - continued								
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	94.9	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	88.1	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	87.5	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	91.4	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	92.7	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	96.2	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.9	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	93.5	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	89.3	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	97.3	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	93.6	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	96.3	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	92.7	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	107	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	98.0	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	91.2	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	90.5	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	89.9	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	94.9	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	82.1	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	89.2	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	109	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5719800)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.9	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	104	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	91.9	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	104	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	105	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	104	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	108	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	107	52.0	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074G: Trihalomethanes (QCLot: 5719800)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	99.7	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	94.1	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	94.9	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	90.2	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5719819)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	93.3	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	94.8	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.9	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	92.4	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	79.0	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	90.8	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	88.2	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	89.6	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	89.6	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	78.2	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	83.4	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	38.2	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5719819)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.8	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	97.2	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	98.3	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	100	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	101	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	100	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.2	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.2	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	98.0	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.5	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	95.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	87.4	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	83.2	62.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5719819) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	84.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5719799)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.4	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5719820)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	109	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	98.5	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5719799)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.7	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5719820)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	112	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	104	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	93.5	63.0	131
EP080: BTEXN (QCLot: 5719799)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	114	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	95.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.3	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.3	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.8	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.7	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5724591)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	78.2	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.6	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5724591)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	79.2	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.9	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.2	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724591)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	85.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	86.5	64.0	140

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724591) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	89.6	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5722549)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.3	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.8	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.3	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.2	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.4	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5722515)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.6	77.0	111
EP074D: Fumigants (QCLot: 5720049)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	104	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	101	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	104	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	113	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5720049)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	99.3	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	106	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	106	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	119	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	107	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	106	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	104	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	109	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	109	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	105	67.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5720049) - continued								
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	107	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	105	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	109	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	107	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	110	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	109	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	112	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	108	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	104	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	96.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	110	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	115	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	115	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	99.5	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	106	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5720049)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	106	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	104	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	118	67.0	123
EP074G: Trihalomethanes (QCLot: 5720049)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	108	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	103	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	105	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5719910)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	35.1	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	70.8	52.0	90.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5719910) - continued								
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	84.6	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.1	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	72.4	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	77.3	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	64.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	86.4	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	62.3	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	70.0	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	79.7	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	39.7	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5719910)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	71.3	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	81.3	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	88.8	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	86.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	95.5	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	88.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	97.6	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	91.4	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	82.3	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	66.7	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.9	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	99.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	86.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	66.7	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5719911)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	69.1	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	85.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	81.5	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5720050)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.8	75.0	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5719911)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	69.6	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	76.9	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	62.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5720050)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.0	75.0	127
EP080: BTEXN (QCLot: 5720050)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	93.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.9	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	97.7	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	113	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5724742)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	86.9	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	89.9	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	87.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5724742)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.0	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724742)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	82.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	91.5	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	92.4	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	84.3	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Matrix Spike (MS) Report: Spike	SpikeRecovery(%)	Acceptable Limits (%)

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5719950)							
ES2411530-002	BH05_0.8-0.9	EG005T: Arsenic	7440-38-2	50 mg/kg	97.9	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	100	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	99.8	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.7	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	103	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5719951)							
ES2411530-002	BH05_0.8-0.9	EG035T: Mercury	7439-97-6	5 mg/kg	97.7	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5719822)							
ES2411530-015	R_TP12_1.0-1.1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	87.3	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5719821)							
ES2411530-015	R_TP12_1.0-1.1	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	88.3	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.0	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	77.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	97.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	102	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.0	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5719821)							
ES2411530-015	R_TP12_1.0-1.1	EP068: Diazinon	333-41-5	0.5 mg/kg	83.2	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	87.6	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	94.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	83.7	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5719800)							
ES2411530-002	BH05_0.8-0.9	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	71.1	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	75.2	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5719800)							
ES2411530-002	BH05_0.8-0.9	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	79.1	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5719819)							
ES2411530-015	R_TP12_1.0-1.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.1	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.1	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	85.3	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	67.6	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5719819)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5719819) - continued							
ES2411530-015	R_TP12_1.0-1.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	95.3	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	103	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5719799)							
ES2411530-002	BH05_0.8-0.9	EP080: C6 - C9 Fraction	----	32.5 mg/kg	68.6	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5719820)							
ES2411530-015	R_TP12_1.0-1.1	EP071: C10 - C14 Fraction	----	480 mg/kg	115	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	110	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	105	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5719799)							
ES2411530-002	BH05_0.8-0.9	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	70.8	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5719820)							
ES2411530-015	R_TP12_1.0-1.1	EP071: >C10 - C16 Fraction	----	860 mg/kg	112	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	109	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	107	52.0	132
EP080: BTEXN (QCLot: 5719799)							
ES2411530-002	BH05_0.8-0.9	EP080: Benzene	71-43-2	2.5 mg/kg	97.1	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	80.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	79.8	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	74.7	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	76.7	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	74.9	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5724591)							
EB2410572-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	86.9	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	98.2	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	82.6	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5724591)							
EB2410572-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	84.1	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	96.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	92.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	92.5	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	85.0	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724591)							
EB2410572-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	80.8	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	92.9	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	86.2	65.0	137

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724591) - continued							
EB2410572-003	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	75.8	69.2	143

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Acceptable Limits (%) Low	Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5722549)							
ES2411527-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	111	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	100	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	106	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	105	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	101	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.5	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5722515)							
ES2411316-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	83.3	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5720049)							
ES2411585-003	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	95.9	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	107	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5720049)							
ES2411585-003	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5720050)							
ES2411585-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	96.5	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5720050)							
ES2411585-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	97.5	70.0	130
EP080: BTEXN (QCLot: 5720050)							
ES2411585-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	102	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5724742)							
EB2411961-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	82.8	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	94.2	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	84.8	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5724742)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5724742) - continued							
EB2411961-004	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	86.4	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	105	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	91.2	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.9	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	96.4	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5724742)							
EB2411961-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	109	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	88.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	109	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	114	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2411530**	Page	: 1 of 13
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ERIC SERTTAS	No. of samples received	: 17
Order number	: 60709736 1.0	No. of samples analysed	: 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) R_TP12_0.1-0.2, R_TP12_1.0-1.1	**03-Apr-2024**	**----**	----	----	**11-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EA055) BH05_0.8-0.9, BH05_2.2-2.3, QC100_20240407	**07-Apr-2024**	**----**	----	----	**11-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EA055) BH06_0.8-0.9, BH06_2.0-2.5, BH06_4.7-4.8, QC100_20240408	**08-Apr-2024**	**----**	----	----	**11-Apr-2024**	22-Apr-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) R_TP12_0.1-0.2	**03-Apr-2024**	**----**	----	----	**12-Apr-2024**	30-Sep-2024	✓
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200) BH05_0.4-0.5, BH06_0.4-0.5	**07-Apr-2024**	**----**	----	----	**12-Apr-2024**	04-Oct-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**11-Apr-2024**	30-Sep-2024	✓	**12-Apr-2024**	30-Sep-2024	✓
Soil Glass Jar - Unpreserved (EG005T) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	04-Oct-2024	✓	**12-Apr-2024**	04-Oct-2024	✓
Soil Glass Jar - Unpreserved (EG005T) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**11-Apr-2024**	05-Oct-2024	✓	**12-Apr-2024**	05-Oct-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**11-Apr-2024**	01-May-2024	✓	**15-Apr-2024**	01-May-2024	✓
Soil Glass Jar - Unpreserved (EG035T) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	05-May-2024	✓	**15-Apr-2024**	05-May-2024	✓
Soil Glass Jar - Unpreserved (EG035T) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**11-Apr-2024**	06-May-2024	✓	**15-Apr-2024**	06-May-2024	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) R_TP12_1.0-1.1		**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) R_TP12_1.0-1.1		**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) R_TP12_1.0-1.1		**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
EP074D: Fumigants								
Soil Glass Jar - Unpreserved (EP074) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	14-Apr-2024	✓	**12-Apr-2024**	14-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH06_2.0-2.5, QC100_20240408	BH06_4.7-4.8,	**08-Apr-2024**	**11-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP074E: Halogenated Aliphatic Compounds								
Soil Glass Jar - Unpreserved (EP074) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	14-Apr-2024	✓	**12-Apr-2024**	14-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH06_2.0-2.5, QC100_20240408	BH06_4.7-4.8,	**08-Apr-2024**	**11-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds								
Soil Glass Jar - Unpreserved (EP074) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	14-Apr-2024	✓	**12-Apr-2024**	14-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH06_2.0-2.5, QC100_20240408	BH06_4.7-4.8,	**08-Apr-2024**	**11-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP074G: Trihalomethanes								
Soil Glass Jar - Unpreserved (EP074) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	14-Apr-2024	✓	**12-Apr-2024**	14-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP074) BH06_2.0-2.5, QC100_20240408	BH06_4.7-4.8,	**08-Apr-2024**	**11-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH06_2.0-2.5, QC100_20240408	BH06_4.7-4.8,	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK		**02-Apr-2024**	**11-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**11-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**11-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK		**02-Apr-2024**	**11-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**11-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓
Soil Glass Jar - Unpreserved (EP080) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**11-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK, TSC 16	TRIP SPIKE,	**02-Apr-2024**	**11-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
R_TP12_0.1-0.2,	R_TP12_1.0-1.1	**03-Apr-2024**	**11-Apr-2024**	17-Apr-2024	✓	**12-Apr-2024**	17-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**11-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**11-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**16-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
HDPE Soil Jar (EP231X)								
BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**16-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
HDPE Soil Jar (EP231X)								
BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**16-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
HDPE Soil Jar (EP231X)								
BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
BH05_0.8-0.9, QC100_20240407	BH05_2.2-2.3,	**07-Apr-2024**	**16-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓
HDPE Soil Jar (EP231X)								
BH06_0.8-0.9, BH06_4.7-4.8,	BH06_2.0-2.5, QC100_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**17-Apr-2024**	26-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240407	07-Apr-2024	12-Apr-2024	04-Oct-2024	✓	12-Apr-2024	04-Oct-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240407	07-Apr-2024	----	----	----	15-Apr-2024	05-May-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240407	07-Apr-2024	12-Apr-2024	14-Apr-2024	✓	13-Apr-2024	22-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240407	07-Apr-2024	12-Apr-2024	14-Apr-2024	✓	13-Apr-2024	22-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240407	07-Apr-2024	12-Apr-2024	14-Apr-2024	✓	15-Apr-2024	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) QC300_20240407	07-Apr-2024	12-Apr-2024	14-Apr-2024	✓	15-Apr-2024	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240407	07-Apr-2024	11-Apr-2024	21-Apr-2024	✓	11-Apr-2024	21-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) QC300_20240407	07-Apr-2024	15-Apr-2024	04-Oct-2024	✓	17-Apr-2024	04-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20240407	**07-Apr-2024**	**15-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	04-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20240407	**07-Apr-2024**	**15-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	04-Oct-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC300_20240407	**07-Apr-2024**	**15-Apr-2024**	04-Oct-2024	✓	**17-Apr-2024**	04-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals by ICP-AES	EG005T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	11	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2411530**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736 1.0	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: ERIC SERTTAS		

Dates

Date Samples Received	: 10-Apr-2024 16:27	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 17-Apr-2024	Scheduled Reporting Date	: **17-Apr-2024**

Delivery Details

Mode of Delivery	: Pickup	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 2.3'C, 2.3'C & 2.3'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 17 / 15

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample ID QC200_20240407 & QC200_20240408 will be forwarded to Eurofins as per COC.
- Sample 17 received as extra.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2411530-017 : [08-Apr-2024] : BH06_2.5-3.5 - Received as extra

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2411530-001	07-Apr-2024 00:00	BH05_0.4-0.5		✓			
ES2411530-002	07-Apr-2024 00:00	BH05_0.8-0.9	✓		✓	✓	✓
ES2411530-003	07-Apr-2024 00:00	BH05_2.2-2.3	✓		✓	✓	✓
ES2411530-004	07-Apr-2024 00:00	QC100_20240407	✓		✓	✓	✓
ES2411530-006	07-Apr-2024 00:00	BH06_0.4-0.5		✓			
ES2411530-007	08-Apr-2024 00:00	BH06_0.8-0.9	✓			✓	
ES2411530-008	08-Apr-2024 00:00	BH06_2.0-2.5	✓		✓	✓	✓
ES2411530-010	08-Apr-2024 00:00	BH06_4.7-4.8	✓		✓	✓	✓
ES2411530-011	08-Apr-2024 00:00	QC100_20240408	✓		✓	✓	✓
ES2411530-014	03-Apr-2024 00:00	R_TP12_0.1-0.2	✓	✓			
ES2411530-015	03-Apr-2024 00:00	R_TP12_1.0-1.1	✓				

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EP080 BTEXN	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2411530-007	08-Apr-2024 00:00	BH06_0.8-0.9					✓
ES2411530-009	08-Apr-2024 00:00	BH06_3.3-3.4	✓				
ES2411530-012	02-Apr-2024 00:00	TRIP BLANK				✓	
ES2411530-013	02-Apr-2024 00:00	TRIP SPIKE		✓			
ES2411530-014	03-Apr-2024 00:00	R_TP12_0.1-0.2					✓
ES2411530-015	03-Apr-2024 00:00	R_TP12_1.0-1.1			✓		
ES2411530-016	02-Apr-2024 00:00	TSC 16		✓			
ES2411530-017	08-Apr-2024 00:00	BH06_2.5-3.5 Receiv...	✓				

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2411530-005	07-Apr-2024 00:00	QC300_20240407	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2411530-005	07-Apr-2024 00:00	QC300_20240407	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

Asbestos
A&S / Newcastle
QC200 20240408
QC200 20240407 / EUROFINS

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITTAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.seritas@aecom.com , kate.mcgrath@aecom.com	Subcontracting Lab / Split WO:
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	Lab / Analysis:

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Organised By / Date:
Relinquished By / Date:
Courier / Courier:
WO No: ES2411530
Attached By PO / Internal Sheet:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (AF/FA)	TRH/BTEX/PAH/8 METALS	PHENOLS	PFAS (SHORT SUITE)	CHCs	6-Cls	DTEXN	OCP/OPP/PCB				HOLD	
1	ACM-C005_0.4-0.5	S	7/6/24	PM	J, ZLB, PF	1,1,1	X												
2	-0.8-0.9				↓	↓		X	X	X	X								→ QC200: FORWARD TO EUROFINS
3	-2.2-2.3							X	X	X	X								
4	QC100_20240407				J	1		X	X	X	X								
—	QC200-20240407	↓	↓	↓	↓	1		X	X	X	X								
5	QC300-20240407	W	7/6/24	PM	V, AG, ZLB, PF	2,1,1,2		X	X	X	X								
6	DH06-0.4-0.5	S	8/6/24	AM	J, ZLB	1,1	X												
7	-0.8-0.9				J, ZLB, PF	1,1,1		X		X									
8	-2.0-2.5							X	X	X	X								
9	-3.3-3.4				↓	↓												X	
10	-4.7-4.8				J, PF	1,1		X	X	X	X								
11	QC100_20240408				J	1		X	X	X	X								
—	QC200_20240408							X	X	X	X								→ QC200: FORWARD TO EUROFINS
12	TRIP BLANK		lab prep									X							
13	TRIP SPIKE	↓		↓	↓	↓						↓	X						
14	R-TP12_0.1-0.2		8/6/24	PM	J, ZLB	1,1	X	X											
15	-1.0-1.1	↓	↓	↓	↓	↓		X						X					
16	TSL																		

RELINQUISHED BY: Name: ERIC SERITTAS Date: 8/6/24 Time: PM Of:

RECEIVED BY: Name: Date: Time: Of:

RECEIVED BY: Name: WANS Date: 8/6/24 Time: 1927 Of: AS

METHOD OF SHI: Con' Note No: Transport Co:

PRIORITISE *** EXTRACTION / ANALYSIS DUE TO HOLDING TIME

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

COC Page 1

Environmental Division
Sydney
Work Order Reference
ES2411530

Telephone : +61-2-8784 8555

ANZ

FQM - Generic Chain of Custody Form

Asbestos
A&S / Newcastle
QC200 20240408
QC200 20240407 / EUROFINS

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITTAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	Subcon / Reward Lab / Split WO:
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	Lab / Analysis:

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES2411530
Attached By PO / Internal Sheet:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (A/B)	TRH/BTEXN/PAH/8 METALS	PHENOLS	PFAS (SHORT SUITE)	CHCs	6-Cs	DTEXN	OCP/OPP/PCB					HOLD	
1	ACM-C005_0.4-0.5	S	7/4/24	PM	J, ZLB, PF	1,1,1	X													
2	-0.8-0.9							X	X	X	X									
3	-2.2-2.3							X	X	X	X									
4	QC100_20240407				J	1		X	X	X	X									
—	QC200-20240407					1		X	X	X	X									
5	QC300-20240407	W	7/4/24	PM	V, AG, P, PF	2,1,1,2		X	X	X	X									→ QC200: FORWARD TO EUROFINS
6	BH06_0.4-0.5	S	8/4/24	AM	J, ZLB	1,1	X													
7	-0.8-0.9				J, ZLB, PF	1,1,1		X		X										
8	-2.0-2.5							X	X	X	X									
9	-3.3-3.4																			
10	-4.7-4.8				J, PF	1,1		X	X	X	X								X	
11	QC100_20240408				J	1		X	X	X	X									
—	QC200_20240408							X	X	X	X									
12	TRIP BLANK		lab prep.									X								→ QC200: FORWARD TO EUROFINS
13	TRIP SPIKE											X	X							
14	R-TP12_0.1-0.2		8/4/24	PM	J, ZLB	1,1	X	X												} PRIORITIZE *** EXTRACTION / ANALYSIS DUE TO HOLDING TIME
15	-1.0-1.1							X						X						
16	TSL																			
17	BH06 2.0-2.8																			

extra

RELINQUISHED BY:	RECEIVED BY	RECEIVED BY	METHOD OF SHI
Name: ERIC SERITTAS	Name:	Name: WCMS	Con' Note No:
Of:	Of:	Of: AS	Transport Co:
Date: 8/4/24	Date:	Date: 8/4/24	
Time: PM	Time:	Time: 1927	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

Q4AN(EV)-007-FM1 (3)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2018

Environmental Division
Sydney
Work Order Reference
ES2411530

Telephone: +61-2-8784 8555

CERTIFICATE OF ANALYSIS

Work Order	: **ES2411585-AA**	Page	: 1 of 12
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 10-Apr-2024 19:30
Order number	: 60709736 1.0	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Oct-2024 00:52
Sampler	: ERIC SERTTAS		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 002, 004. All analysis results are as per the previous report.
- Amendment (04/10/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 04/10/2024 for samples BH01A/GW01A. All analysis results are as per the previous report.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.002**	**0.001**	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**0.0003**
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	**0.003**	**0.005**	**0.003**	**0.010**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.016**	**0.003**	**0.005**	**0.045**	**0.127**
Zinc	7440-66-6	0.005	mg/L		**0.007**	**0.024**	**0.023**	**0.024**	**0.176**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	----	----	----	<5
Isopropylbenzene	98-82-8	5	µg/L		----	----	----	----	<5
n-Propylbenzene	103-65-1	5	µg/L		----	----	----	----	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	----	----	----	<5
sec-Butylbenzene	135-98-8	5	µg/L		----	----	----	----	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	----	----	----	<5
tert-Butylbenzene	98-06-6	5	µg/L		----	----	----	----	<5
p-Isopropyltoluene	99-87-6	5	µg/L		----	----	----	----	<5
n-Butylbenzene	104-51-8	5	µg/L		----	----	----	----	<5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	----	----	----	<50
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	----	----	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	----	----	----	<50
2-Hexanone (MBK)	591-78-6	50	µg/L		----	----	----	----	<50
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	----	----	----	<5
EP074D: Fumigants									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EP074D: Fumigants - Continued									
2.2-Dichloropropane	594-20-7	5	µg/L		----	----	<5	----	<5
1.2-Dichloropropane	78-87-5	5	µg/L		----	----	<5	----	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	----	<5	----	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	----	<5	----	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	----	<5	----	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	----	<50	----	<50
Chloromethane	74-87-3	50	µg/L		----	----	<50	----	<50
Vinyl chloride	75-01-4	50	µg/L		----	----	<50	----	<50
Bromomethane	74-83-9	50	µg/L		----	----	<50	----	<50
Chloroethane	75-00-3	50	µg/L		----	----	<50	----	<50
Trichlorofluoromethane	75-69-4	50	µg/L		----	----	<50	----	<50
1.1-Dichloroethene	75-35-4	5	µg/L		----	----	<5	----	<5
Iodomethane	74-88-4	5	µg/L		----	----	<5	----	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	----	<5	----	<5
1.1-Dichloroethane	75-34-3	5	µg/L		----	----	<5	----	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	----	<5	----	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	----	<5	----	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		----	----	<5	----	<5
Carbon Tetrachloride	56-23-5	5	µg/L		----	----	<5	----	<5
1.2-Dichloroethane	107-06-2	5	µg/L		----	----	<5	----	<5
Trichloroethene	79-01-6	5	µg/L		----	----	<5	----	<5
Dibromomethane	74-95-3	5	µg/L		----	----	<5	----	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	----	<5	----	<5
1.3-Dichloropropane	142-28-9	5	µg/L		----	----	<5	----	<5
Tetrachloroethene	127-18-4	5	µg/L		----	----	<5	----	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	----	<5	----	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	----	<5	----	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	----	<5	----	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	----	<5	----	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	----	<5	----	<5
Pentachloroethane	76-01-7	5	µg/L		----	----	<5	----	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	----	<5	----	<5
Hexachlorobutadiene	87-68-3	5	µg/L		----	----	<5	----	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	----	<5	----	<5
Bromobenzene	108-86-1	5	µg/L		----	----	<5	----	<5
2-Chlorotoluene	95-49-8	5	µg/L		----	----	<5	----	<5
4-Chlorotoluene	106-43-4	5	µg/L		----	----	<5	----	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	----	<5	----	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	----	<5	----	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	----	<5	----	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	----	<5	----	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	----	<5	----	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	----	<5	----	**22**
Bromodichloromethane	75-27-4	5	µg/L		----	----	<5	----	<5
Dibromochloromethane	124-48-1	5	µg/L		----	----	<5	----	<5
Bromoform	75-25-2	5	µg/L		----	----	<5	----	<5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		**9.0**	<1.0	<1.0	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.6
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**280**	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		**180**	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		**180**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**400**	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		**210**	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		**150**	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		**4**	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		**33**	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		**33**	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		**187**	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP074S: VOC Surrogates									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH17	BH01A/GW01A	BH42	BH35/GW35 BH35/GW35	A-BH06
				Sampling date / time	10-Apr-2024 00:30	10-Apr-2024 01:35	10-Apr-2024 02:50	10-Apr-2024 04:00	10-Apr-2024 05:10
Compound	CAS Number	LOR	Unit		ES2411585-001	ES2411585-002	ES2411585-003	ES2411585-004	ES2411585-005
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	----	109	----	96.4
Toluene-D8	2037-26-5	5	%		----	----	115	----	104
4-Bromofluorobenzene	460-00-4	5	%		----	----	109	----	98.8
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		25.1	20.0	20.2	20.7	27.6
2-Chlorophenol-D4	93951-73-6	1.0	%		48.9	42.1	42.6	43.6	48.2
2.4.6-Tribromophenol	118-79-6	1.0	%		47.3	39.5	40.4	38.5	50.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		53.8	51.8	58.3	56.7	52.5
Anthracene-d10	1719-06-8	1.0	%		61.7	58.1	57.2	58.7	60.7
4-Terphenyl-d14	1718-51-0	1.0	%		65.5	60.6	59.6	59.4	64.3
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		95.7	89.9	98.0	90.4	84.0
Toluene-D8	2037-26-5	2	%		120	115	99.9	114	107
4-Bromofluorobenzene	460-00-4	2	%		123	120	105	114	109

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240410	TRIP BLANK	TRIP SPIKE	----	----
				Sampling date / time	10-Apr-2024 02:00	25-Mar-2024 00:00	25-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2411585-006	ES2411585-007	ES2411585-008	--------	--------
					Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240410	TRIP BLANK	TRIP SPIKE	----	----
				Sampling date / time	10-Apr-2024 02:00	25-Mar-2024 00:00	25-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2411585-006	ES2411585-007	ES2411585-008	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240410	TRIP BLANK	TRIP SPIKE	----	----
				Sampling date / time	10-Apr-2024 02:00	25-Mar-2024 00:00	25-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2411585-006	ES2411585-007	ES2411585-008	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	19	----	----
Toluene	108-88-3	2	µg/L		<2	<2	20	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	19	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	20	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	21	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	41	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	99	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	21	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		22.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		31.8	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		23.3	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		63.4	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		58.7	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		62.5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		88.0	88.1	90.0	----	----
Toluene-D8	2037-26-5	2	%		109	110	113	----	----
4-Bromofluorobenzene	460-00-4	2	%		113	113	115	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2411585-AA**	Page	: 1 of 11
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 10-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Oct-2024
Sampler	: ERIC SERTTAS		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5723932)									
ES2411406-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.006	18.2	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2411947-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.015	0.015	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5724459)									
ES2411585-001	A-BH17	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2411664-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5720049) - continued									
ES2411585-003	BH42	EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2411687-007	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2411687-007	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5720049) - continued									
ES2411687-007	Anonymous	EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074G: Trihalomethanes (QC Lot: 5720049)									
ES2411585-003	BH42	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5720050)									
ES2411585-003	BH42	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2411687-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5720050)									
ES2411585-003	BH42	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2411687-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5720050)									
ES2411585-003	BH42	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2411687-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5723932)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.0	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.4	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.0	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.9	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.2	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5724459)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.6	77.0	111
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5720049)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	106	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	106	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	105	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	108	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	105	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	107	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	104	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5720049)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	109	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	89.5	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	109	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	88.4	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5720049)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	104	72.8	127
EP074D: Fumigants (QCLot: 5720049)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	104	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	101	62.0	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074D: Fumigants (QCLot: 5720049) - continued								
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	104	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	113	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5720049)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	99.3	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	106	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	106	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	119	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	107	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	106	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	104	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	109	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	103	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	109	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	105	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	107	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	105	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	109	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	107	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	110	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	109	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	112	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	108	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	104	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	96.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	110	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	115	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	115	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	99.5	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	106	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5720049)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	109	76.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 5720049) - continued								
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	106	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	104	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	118	67.0	123
EP074G: Trihalomethanes (QCLot: 5720049)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	108	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	103	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	103	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	105	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5718542)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	32.2	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	66.0	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	66.9	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	60.0	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	67.7	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	74.9	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	87.0	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	66.8	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	73.8	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	82.3	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	72.0	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	40.5	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5718542)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	71.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	71.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	69.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	67.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	75.0	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	66.3	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	68.0	63.1	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5718542) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	70.3	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	66.8	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	78.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	69.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	77.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	71.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	71.0	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	78.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5718543)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	62.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	92.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	78.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5720050)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5718543)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	72.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	90.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	78.0	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5720050)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.0	75.0	127
EP080: BTEXN (QCLot: 5720050)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	93.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	91.9	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	97.7	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	113	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report: Spike	SpikeRecovery(%)	Acceptable Limits (%)

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 5723932)							
ES2411406-007	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	107	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	97.9	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.5	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.9	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.6	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5724459)							
ES2411647-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	74.6	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5720049)							
ES2411585-003	BH42	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	95.9	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	107	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5720049)							
ES2411585-003	BH42	EP074: Chlorobenzene	108-90-7	25 µg/L	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5720050)							
ES2411585-003	BH42	EP080: C6 - C9 Fraction	----	325 µg/L	96.5	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5720050)							
ES2411585-003	BH42	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	97.5	70.0	130
EP080: BTEXN (QCLot: 5720050)							
ES2411585-003	BH42	EP080: Benzene	71-43-2	25 µg/L	102	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	101	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.1	70.0	130

QUALITY CONTROL REPORT

Work Order	: **ES2411585-AB**	Page	: 1 of 3
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 10-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Oct-2024
Sampler	: ERIC SERTTAS		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 5718024)									
ES2411162-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.89	8.00	1.4	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 5726110)									
ES2411343-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.22	6.34	1.9	0% - 20%
ES2411203-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.24	8.24	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5718023)									
ES2411167-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	410	408	0.4	0% - 20%
ES2411176-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	687	689	0.2	0% - 20%
ES2411162-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	7760	7750	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5726108)									
ES2411640-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	780	774	0.7	0% - 20%
ES2411678-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	218	218	0.0	0% - 20%
ES2411343-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	<1	0.0	No Limit
ES2411203-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	16500	16900	2.9	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5720047)									
ES2411398-011	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
WN2404312-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	666	650	2.5	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5720046)									
ES2411398-011	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
WN2404312-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	273	276	1.1	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5718024)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA005P: pH by PC Titrator (QCLot: 5726110)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.4	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5718023)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	97.4	90.2	111
EA010P: Conductivity by PC Titrator (QCLot: 5726108)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	97.0	90.2	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5720047)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.7	82.0	122
				<1	500 mg/L	97.5	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5720046)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	101	80.9	127
				<1	1000 mg/L	93.6	80.9	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5720047)							
ES2411398-011	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	96.1	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5720046)							
ES2411398-011	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	83.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2411585**	Page	: 1 of 9
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDLRL 1100	Date Samples Received	: 10-Apr-2024
Site	: ----	Issue Date	: 04-Oct-2024
Sampler	: ERIC SERTTAS	No. of samples received	: 8
Order number	: 60709736 1.0	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
BH01A/GW01A, A-BH06	----	----	----	11-Apr-2024	10-Apr-2024	**1**
Clear Plastic Bottle - Natural						
BH42	----	----	----	15-Apr-2024	10-Apr-2024	**5**
EP080/071: Total Petroleum Hydrocarbons						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	11-Apr-2024	08-Apr-2024	**3**	11-Apr-2024	08-Apr-2024	**3**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	11-Apr-2024	08-Apr-2024	**3**	11-Apr-2024	08-Apr-2024	**3**
EP080: BTEXN						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK, TRIP SPIKE	11-Apr-2024	08-Apr-2024	**3**	11-Apr-2024	08-Apr-2024	**3**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
BH01A/GW01A, A-BH06	**10-Apr-2024**	**----**	----	----	**11-Apr-2024**	10-Apr-2024	×
Clear Plastic Bottle - Natural (EA005-P)							
BH42	**10-Apr-2024**	**----**	----	----	**15-Apr-2024**	10-Apr-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
BH01A/GW01A, A-BH06	**10-Apr-2024**	**----**	----	----	**11-Apr-2024**	08-May-2024	✓
Clear Plastic Bottle - Natural (EA010-P)							
BH42	**10-Apr-2024**	**----**	----	----	**15-Apr-2024**	08-May-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
BH01A/GW01A, BH42, A-BH06	**10-Apr-2024**	**----**	----	----	**11-Apr-2024**	08-May-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
BH01A/GW01A, BH42, A-BH06	**10-Apr-2024**	**----**	----	----	**11-Apr-2024**	08-May-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**13-Apr-2024**	07-Oct-2024	✓	**13-Apr-2024**	07-Oct-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**----**	----	----	**16-Apr-2024**	08-May-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074)							
A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
BH42, A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BH42, A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BH42, A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BH42, A-BH06	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, QC300_20240410	**10-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) A-BH17, BH01A/GW01A, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH42	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**13-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**11-Apr-2024**	08-Apr-2024	×	**11-Apr-2024**	08-Apr-2024	×

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) A-BH17, BH01A/GW01A, BH42, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**12-Apr-2024**	17-Apr-2024	✓	**16-Apr-2024**	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) A-BH17, BH01A/GW01A, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH42	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**13-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**11-Apr-2024**	08-Apr-2024	×	**11-Apr-2024**	08-Apr-2024	×
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) A-BH17, BH01A/GW01A, BH35/GW35 - BH35/GW35, A-BH06, QC300_20240410	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**11-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH42	**10-Apr-2024**	**11-Apr-2024**	24-Apr-2024	✓	**13-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK, TRIP SPIKE	**25-Mar-2024**	**11-Apr-2024**	08-Apr-2024	×	**11-Apr-2024**	08-Apr-2024	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	7	58	**12.07**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	58	**10.34**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	58	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2411585**		
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDLRL 1100	Page	: 1 of 3
Order number	: 60709736 1.0	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: ERIC SERTTAS		

Dates

Date Samples Received	: 10-Apr-2024 19:30	Issue Date	: 04-Oct-2024
Client Requested Due Date	: 18-Apr-2024	Scheduled Reporting Date	: **18-Sep-2024**

Delivery Details

Mode of Delivery	: Pickup	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 4.5'C, 4.5'C & 4.5'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN to correct a sample ID for BH01A/GW01A.
- Sampel ID BH35 on the COC was received but the bottle was labelled BH35/GW35.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2411585-004 : 10-Apr-2024 04:00 : BH35/GW35 - BH35/GW35

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - ED041G Sulfate (Turbidimetric) as SO4 2 by Discrete	WATER - ED045G Chloride by Discrete Analyser	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2411585-001	10-Apr-2024 00:30	A-BH17							✓
ES2411585-002	10-Apr-2024 01:35	BH01A/GW01A	✓	✓	✓	✓			✓
ES2411585-003	10-Apr-2024 02:50	BH42	✓	✓	✓	✓	✓		✓
ES2411585-004	10-Apr-2024 04:00	BH35/GW35 BH35/GW35							✓
ES2411585-005	10-Apr-2024 05:10	A-BH06	✓	✓	✓	✓		✓	
ES2411585-006	10-Apr-2024 02:00	QC300_20240410							✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074 (water) minus BTEXN Volatile Organic Compounds (minus BTEXN)	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2411585-005	10-Apr-2024 05:10	A-BH06	✓		
ES2411585-007	25-Mar-2024 00:00	TRIP BLANK			✓
ES2411585-008	25-Mar-2024 00:00	TRIP SPIKE		✓	

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EP080: TRH Volatiles/BTEX							
TRIP BLANK	Amber VOC Vial - Sulfuric Acid	08-Apr-2024	08-Apr-2024	10-Apr-2024	×	----	----
TRIP SPIKE	Amber VOC Vial - Sulfuric Acid	08-Apr-2024	08-Apr-2024	10-Apr-2024	×	----	----

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total Bottles	* pH	Water Aggressivity *	PHENOLS	TRH/BTEXN PAH/SMETHL	CHC	VOCs	C6-C9	BTEXN	HOLD
1	A-BH17	W	10/04	00:30	V,P,AG,SP	N 2,1,1,1			X	X					
2	BH01			01:35			X	X	X	X					
3	BH02			02:50					X	X	X				
4	BH35			04:00					X	X					
5	A-BH06			05:10			X	X		X		X			
6	QC300-20241010			02:00					X	X			X		
7	TRIP BLANK		lab prep										X	X	
8	TRIP SPIKE														

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

* Prioritize pH extraction & analysis in 24Hrs of sampling
* Water Aggressivity suite includes pH

HT

Environmental Division
Sydney
Work Order Reference
ES2411585

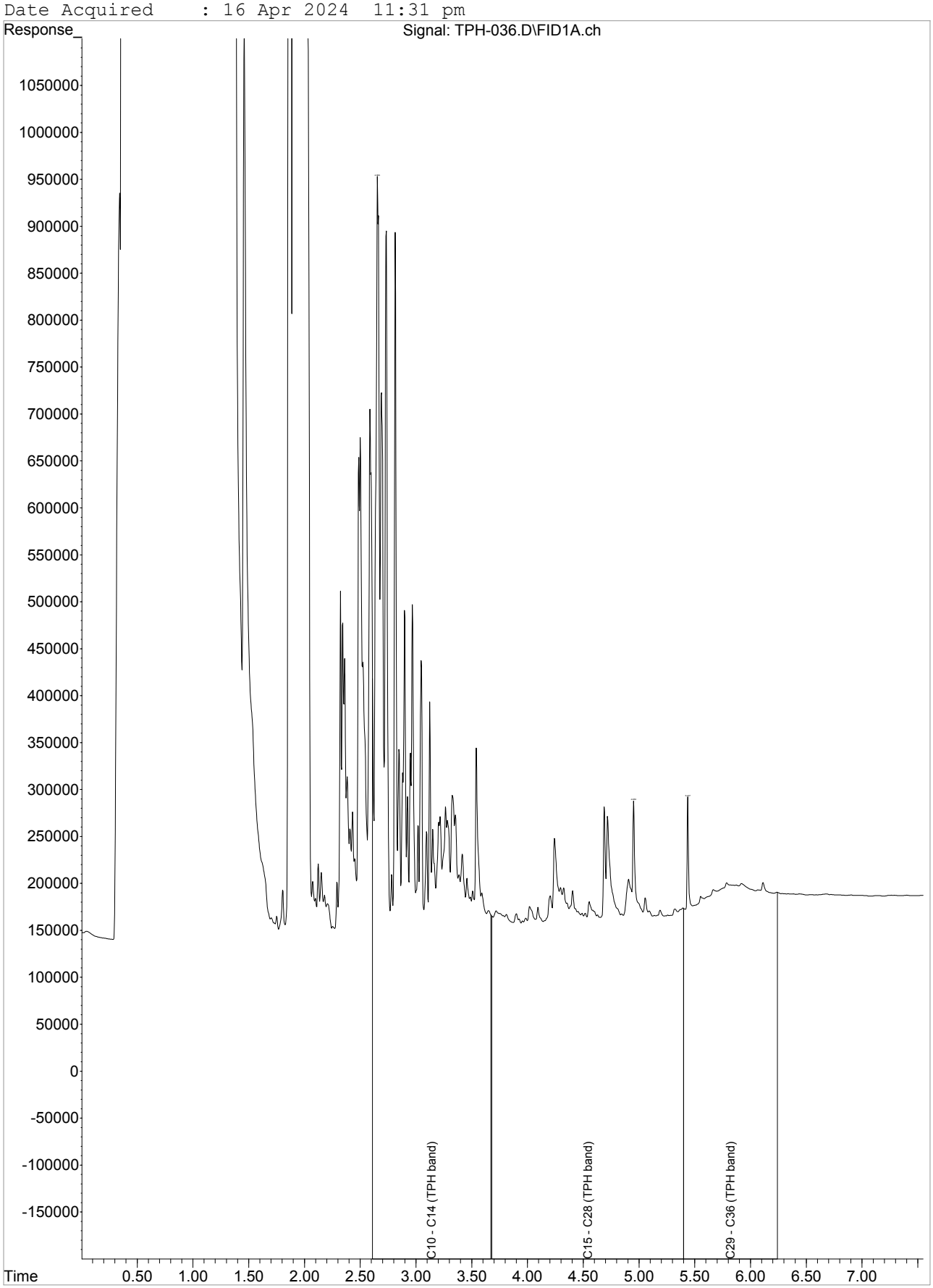
Telephone : +61-2-8784 8555

RELINQUISHED BY	RECEIVED BY	RECEIVED BY	METHOD OF SHIPMENT
Name: ERIC SERITAS	Name:	Name: WCAS	Con' Note No:
Of:	Of:	Of: AS	Transport Co:
Date: 10/4/24	Date:	Date: 10/4/24	
Time: pm	Time:	Time: 1930	

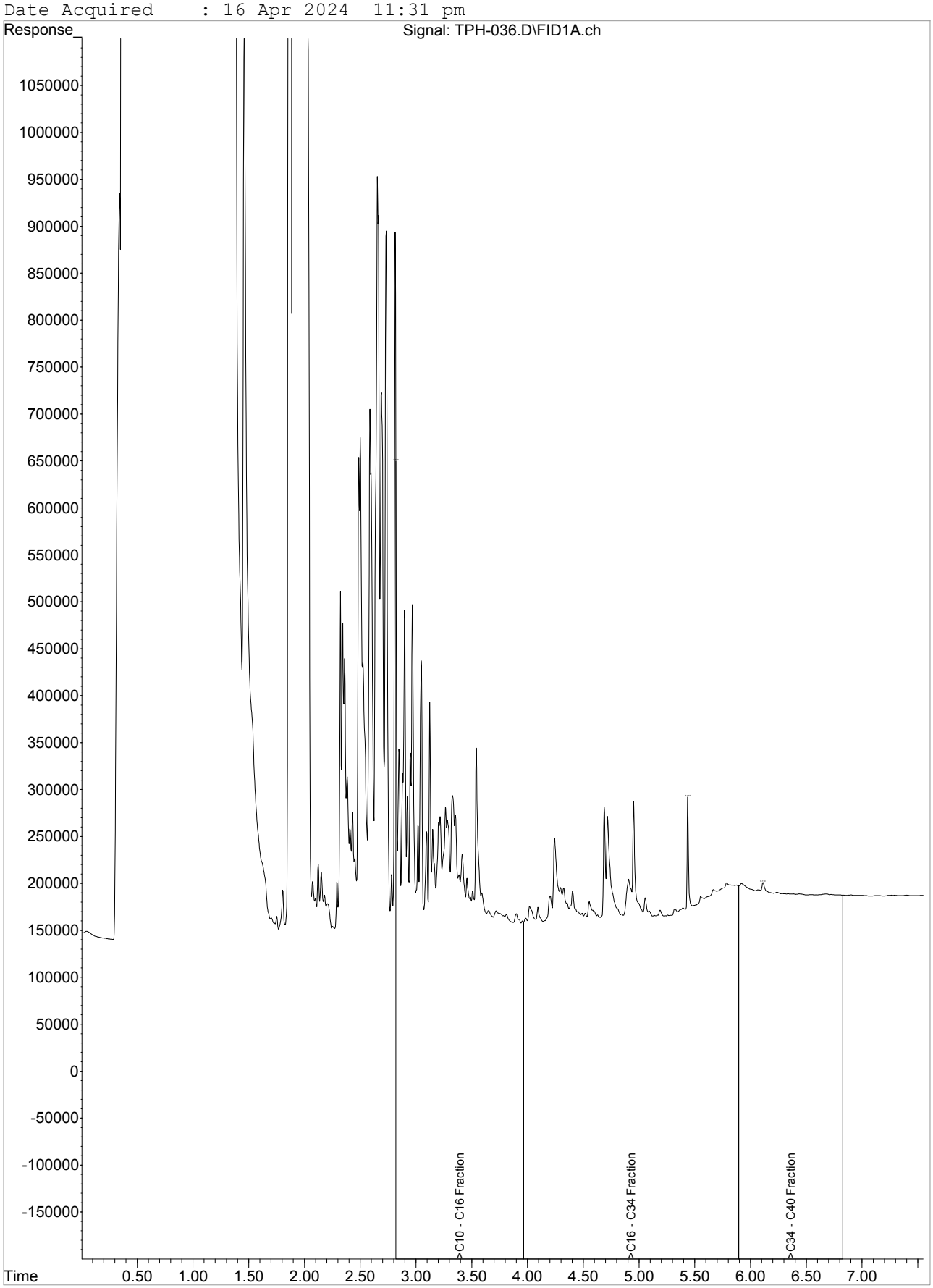
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

COC Page 1 of 1

Fraction Scheme : Legacy
Data File : TPH-036.D
Laboratory Number: ES2411585-001
Sample ID : A-BH17
Date Acquired : 16 Apr 2024 11:31 pm



Fraction Scheme : NEPM
Data File : TPH-036.D
Laboratory Number: ES2411585-001
Sample ID : A-BH17
Date Acquired : 16 Apr 2024 11:31 pm



CERTIFICATE OF ANALYSIS

Work Order	: **ES2411715**	Page	: 1 of 5
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 08-Apr-2024 19:27
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 12-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 09:19
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 5		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 001-005. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-TP13_1.5-1.7	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411715-001	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**18.5**	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-TP13_1.5-1.7	----	----	----	----
				Sampling date / time	07-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411715-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**73.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**66.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**66.6**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**72.9**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**73.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**86.8**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**105**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**92.5**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**104**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

QUALITY CONTROL REPORT

Work Order	: **ES2411715**	Page	: 1 of 6
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 08-Apr-2024
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 12-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 5		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5722277)									
ES2411575-028	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	11.2	10.9	2.4	0% - 50%
ES2411651-006	Anonymous	EA055: Moisture Content	----	0.1	%	19.5	21.4	9.2	0% - 20%
EP075(SIM)A: Phenolic Compounds (QC Lot: 5721365)									
ES2411575-004	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2411663-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5721365) - continued									
ES2411663-002	Anonymous	EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721142)									
ES2411715-001	R-TP13_1.5-1.7	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2411748-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721366)									
ES2411575-004	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	3810	4370	13.7	0% - 20%
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	260	260	0.0	No Limit
ES2411663-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721142)									
ES2411715-001	R-TP13_1.5-1.7	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2411748-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721366)									
ES2411575-004	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	3060	3300	7.7	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	1110	1260	13.1	0% - 20%
ES2411663-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5721142)									
ES2411715-001	R-TP13_1.5-1.7	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2411748-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5721142) - continued									
ES2411748-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5721365)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	87.8	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	88.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	80.4	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	85.2	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	64.8	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	79.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	73.8	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	85.2	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	82.2	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	73.0	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	73.5	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	14.3	10.0	80.0
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721142)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.9	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721366)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	100	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	98.1	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721142)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721366)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	98.3	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	95.7	63.0	131
EP080: BTEXN (QCLot: 5721142)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.3	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.6	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.9	81.3	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5721142) - continued								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	106	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5721365)							
ES2411663-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	72.5	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	74.3	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.3	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	74.6	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	59.9	20.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721142)							
ES2411715-001	R-TP13_1.5-1.7	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.2	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721366)							
ES2411663-002	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	114	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	111	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	125	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721142)							
ES2411715-001	R-TP13_1.5-1.7	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721366)							
ES2411663-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	109	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	131	52.0	132
EP080: BTEXN (QCLot: 5721142)							
ES2411715-001	R-TP13_1.5-1.7	EP080: Benzene	71-43-2	2.5 mg/kg	93.9	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	86.2	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.3	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.8	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.6	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2411715**	Page	: 1 of 4
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 08-Apr-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: ----	No. of samples received	: 5
Order number	: 60709736 - CDRL 1100	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) R-TP13_1.5-1.7	**07-Apr-2024**	**----**	----	----	**12-Apr-2024**	21-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) R-TP13_1.5-1.7	**07-Apr-2024**	**15-Apr-2024**	21-Apr-2024	✓	**16-Apr-2024**	25-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) R-TP13_1.5-1.7	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R-TP13_1.5-1.7	**07-Apr-2024**	**15-Apr-2024**	21-Apr-2024	✓	**15-Apr-2024**	25-May-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) R-TP13_1.5-1.7	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP071) R-TP13_1.5-1.7	**07-Apr-2024**	**15-Apr-2024**	21-Apr-2024	✓	**15-Apr-2024**	25-May-2024	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) R-TP13_1.5-1.7	**07-Apr-2024**	**12-Apr-2024**	21-Apr-2024	✓	**12-Apr-2024**	21-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2411715**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 2
Order number	: 60709736 - CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 08-Apr-2024 19:27	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 19-Apr-2024	Scheduled Reporting Date	: **19-Apr-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 2.3'C, 2.3'C, 2.3'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP075 SIM Phenols only SIM - Phenols only	SOIL - S-04 TRH/BTEXN
ES2411715-001	07-Apr-2024 00:00	R-TP13_1.5-1.7		✓	✓	✓
ES2411715-002	07-Apr-2024 00:00	R-TP13_0.0-0.1	✓			
ES2411715-003	07-Apr-2024 00:00	R-TP13_0.4-0.6	✓			
ES2411715-004	07-Apr-2024 00:00	R-TP13_1.1-1.3	✓			
ES2411715-005	07-Apr-2024 00:00	R-TP13_0.7-0.8	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQ including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION Type / Code	Total bottles	TRH/BTEX	PHENOLS	HOLD	Notes: e.g. Highly contaminated sample; e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	20240507_R-TP13-1.5-1.7m	S	07-04-24		BAG x1 + JAR x1		A	+	X	
2	20240507_R-TP13-0-0.1m		07-04-24		JAR x1 COLD TAR				X	
3	20240507_R-TP13-0.4-0.6m		07-04-24		JAR x1 + BAG x1				X	
4	20240507_R-TP13-1.1m-1.3m		07-04-24		JAR x1 + BAG x1				X	
5	20240507_R-TP13-0.7m-0.8m		07-04-24		JAR x1 + BAG x1				X	

Environmental Division
Sydney
Work Order Reference
ES2411715

Telephone : +61-2-8784 8555

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: Wus	Date: 8/4/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: 29	Time: 0927	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes**: Jar = Unpreserved glass jar

ES2411715

COC Page of

CERTIFICATE OF ANALYSIS

Work Order	: **ES2411748**	Page	: 1 of 30
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024 19:30
Order number	: 60709736	Date Analysis Commenced	: 12-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 16:32
Sampler	: Eric S. & GEO Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 19		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
John Williams	Lab Technician	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 005, 009-010, 015-018. All analysis results are as per the previous report.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)

- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
			Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.5	16.7	12.0	12.8	19.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	No
Asbestos (Trace)	1332-21-4	-	-	No	----	----	----	No
Asbestos Type	1332-21-4	-	--	-	----	----	----	-
Synthetic Mineral Fibre	----	-	--	No	----	----	----	No
Organic Fibre	----	-	--	No	----	----	----	No
Sample weight (dry)	----	0.01	g	207	----	----	----	365
APPROVED IDENTIFIER:	----	-	--	J. WILLIAMS	----	----	----	J. WILLIAMS
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	30	12	7	33	20
Copper	7440-50-8	5	mg/kg	35	8	<5	19	14
Lead	7439-92-1	5	mg/kg	73	10	7	11	15
Nickel	7440-02-0	2	mg/kg	27	3	<2	20	3
Zinc	7440-66-6	5	mg/kg	171	16	9	18	20
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	----	<5	<5	----	<5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	----	<5
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	----	<5
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	----	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
			Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	<1	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	<2	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		----	**0.0003**	<0.0002	----	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		----	<0.001	<0.001	----	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		----	<0.0002	<0.0002	----	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		----	<0.0005	<0.0005	----	<0.0005
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		----	**0.0003**	<0.0002	----	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		----	**0.0003**	<0.0002	----	<0.0002
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	**87.7**	**90.3**	----	**91.5**
Toluene-D8	2037-26-5	0.5	%		----	**90.6**	**94.7**	----	**95.0**
4-Bromofluorobenzene	460-00-4	0.5	%		----	**99.5**	**105**	----	**105**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**86.8**	**84.4**	**85.4**	**87.6**	**89.7**
2-Chlorophenol-D4	93951-73-6	0.5	%		**90.2**	**80.2**	**84.6**	**87.8**	**86.2**
2.4.6-Tribromophenol	118-79-6	0.5	%		**66.9**	**64.6**	**57.8**	**57.6**	**60.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**83.6**	**82.2**	**82.8**	**82.4**	**83.3**
Anthracene-d10	1719-06-8	0.5	%		**88.5**	**83.4**	**83.7**	**86.7**	**85.6**
4-Terphenyl-d14	1718-51-0	0.5	%		**81.2**	**80.6**	**87.5**	**81.5**	**80.0**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**113**	**87.7**	**90.8**	**92.3**	**92.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP16_0.0-0.2	ACM_TP16_0.6-0.8	ACM_TP16_1.5-1.7	ACM_TP19_0.6-0.8	ACM_TP19A_1.6-1.7
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-001	ES2411748-002	ES2411748-003	ES2411748-007	ES2411748-009
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		**107**	**90.2**	**94.0**	**96.3**	**94.4**
4-Bromofluorobenzene	460-00-4	0.2	%		**115**	**107**	**111**	**92.4**	**112**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**----**	**98.2**	**96.4**	**----**	**94.8**
13C8-PFOA	----	0.0002	%		**----**	**105**	**102**	**----**	**105**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**17.9**	**10.6**	**----**	**----**	**18.5**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		**5**	<5	**----**	**----**	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	**----**	**----**	<1
Chromium	7440-47-3	2	mg/kg		**18**	**34**	**----**	**----**	**27**
Copper	7440-50-8	5	mg/kg		**19**	**20**	**----**	**----**	**14**
Lead	7439-92-1	5	mg/kg		**13**	**9**	**----**	**----**	**12**
Nickel	7440-02-0	2	mg/kg		**3**	**25**	**----**	**----**	**10**
Zinc	7440-66-6	5	mg/kg		**21**	**20**	**----**	**----**	**20**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	**----**	**----**	<0.1
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	**----**	**----**	**----**
Chloromethane	74-87-3	5	mg/kg		<5	<5	**----**	**----**	**----**
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	**----**	**----**	**----**
Bromomethane	74-83-9	5	mg/kg		<5	<5	**----**	**----**	**----**
Chloroethane	75-00-3	5	mg/kg		<5	<5	**----**	**----**	**----**
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	**----**	**----**	**----**
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	----	----	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	<100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	**3.4**	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	**3.8**	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	**3.9**	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	**1.7**	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	**12.8**	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	**5.6**	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_TP19A_2.8-2.9	QC100_20240408	TRIP BLANK	TRIP SPIKE 17	QC101_20240408
				Sampling date / time	08-Apr-2024 00:00	08-Apr-2024 00:00	02-Apr-2024 00:00	02-Apr-2024 00:00	08-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411748-010	ES2411748-011	ES2411748-012	ES2411748-013	ES2411748-014
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		70.7	89.4	----	----	----
Toluene-D8	2037-26-5	0.5	%		79.2	95.6	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		91.5	99.5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		89.8	82.9	----	----	86.0
2-Chlorophenol-D4	93951-73-6	0.5	%		91.5	84.0	----	----	85.8
2.4.6-Tribromophenol	118-79-6	0.5	%		59.1	54.3	----	----	56.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		82.0	83.2	----	----	86.4
Anthracene-d10	1719-06-8	0.5	%		85.1	86.8	----	----	83.6
4-Terphenyl-d14	1718-51-0	0.5	%		83.4	81.5	----	----	80.3
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		75.5	89.1	93.0	90.4	95.7
Toluene-D8	2037-26-5	0.2	%		67.7	95.1	84.1	72.1	82.2
4-Bromofluorobenzene	460-00-4	0.2	%		97.6	105	90.6	81.7	89.4
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		89.9	101	----	----	----
13C8-PFOA	----	0.0002	%		102	102	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
			Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2411748-015	ES2411748-019	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**6.4**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	-	-	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Synthetic Mineral Fibre	----	-	--	**No**	----	----	----	----
Organic Fibre	----	-	--	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**361**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**J. WILLIAMS**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**14**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**46**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**9**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**64**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**63**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
				Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-015	ES2411748-019	--------	--------	--------
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	5	mg/kg		<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
				Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-015	ES2411748-019	--------	--------	--------
					Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
				Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-015	ES2411748-019	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
				Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-015	ES2411748-019	--------	--------	--------
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	4.8	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	5.4	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	5.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	2.3	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	18.0	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	7.8	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		93.5	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		99.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		108	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		87.2	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		88.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ACM_CO07_0.325-0.5	TRIP CONTROL SPIKE 17	----	----	----
			Sampling date / time	08-Apr-2024 00:00	02-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2411748-015	ES2411748-019	--------	--------	--------
				Result	Result	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates - Continued								
2.4.6-Tribromophenol	118-79-6	0.5	%	**54.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**84.0**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**87.3**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**81.9**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**93.3**	**106**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**99.0**	**92.6**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**112**	**96.6**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC300_20240408	----	----	----	----
				Sampling date / time	08-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411748-004	--------	--------	--------	--------
					Result	----	----	----	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		99.2	----	----	----	----
Toluene-D8	2037-26-5	5	%		97.8	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		103	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		30.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		56.3	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		42.6	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		74.0	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		85.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		93.4	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		99.3	----	----	----	----
Toluene-D8	2037-26-5	2	%		97.0	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		107	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		97.2	----	----	----	----
13C8-PFOA	----	0.02	%		103	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	ACM_TP16_0.0-0.2 - 08-Apr-2024 00:00	A soil sample.
EA200: Description	ACM_TP19A_1.6-1.7 - 08-Apr-2024 00:00	A soil sample.
EA200: Description	ACM_CO07_0.325-0.5 - 08-Apr-2024 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate - Continued			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **ES2411748**	Page	: 1 of 24
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024
Order number	: 60709736	Date Analysis Commenced	: 12-Apr-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: Eric S. & GEO Team		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 19		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
John Williams	Lab Technician	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5722881)									
EB2411885-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	4	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	6	16.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	7	74.3	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	8	17.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	20	22	10.1	No Limit
ES2411762-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	11	16	33.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	29	12.4	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5722277)									
ES2411575-028	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	11.2	10.9	2.4	0% - 50%
ES2411651-006	Anonymous	EA055: Moisture Content	----	0.1	%	19.5	21.4	9.2	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5722278)									
ES2411748-010	ACM_TP19A_2.8-2.9	EA055: Moisture Content	----	0.1 (1.0)*	%	17.9	18.7	4.2	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5722883)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5722883) - continued									
ES2411762-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2411620-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP074D: Fumigants (QC Lot: 5721144)									
ES2411748-002	ACM_TP16_0.6-0.8	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5721144)									
ES2411748-002	ACM_TP16_0.6-0.8	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5721144)									
ES2411748-002	ACM_TP16_0.6-0.8	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5721144)									
ES2411748-002	ACM_TP16_0.6-0.8	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5721381)									
ES2411748-002	ACM_TP16_0.6-0.8	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2411720-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 5721381) - continued									
ES2411720-002	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5721381)									
ES2411748-002	ACM_TP16_0.6-0.8	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2411720-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.5	0.6	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.5	0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5721381) - continued									
ES2411720-002	Anonymous	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.0	1.1	9.5	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721142)									
ES2411715-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2411748-001	ACM_TP16_0.0-0.2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721143)									
ES2411748-002	ACM_TP16_0.6-0.8	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721382)									
ES2411748-002	ACM_TP16_0.6-0.8	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2411720-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721142)									
ES2411715-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2411748-001	ACM_TP16_0.0-0.2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721143)									
ES2411748-002	ACM_TP16_0.6-0.8	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721382)									
ES2411748-002	ACM_TP16_0.6-0.8	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2411720-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5721142)									
ES2411715-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5721142) - continued									
ES2411748-001	ACM_TP16_0.0-0.2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP080: BTEXN (QC Lot: 5721143)									
ES2411748-002	ACM_TP16_0.6-0.8	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5733269)									
ES2411612-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2411806-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002 (0.0010)*	mg/kg	<0.0010	<0.0010	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002 (0.0010)*	mg/kg	<0.0010	<0.0010	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002 (0.0010)*	mg/kg	0.0078	0.0078	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5733269)									
ES2411612-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2411806-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002 (0.0010)*	mg/kg	0.0125	0.0105	17.8	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002 (0.0010)*	mg/kg	0.0057	0.0048	17.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002 (0.0010)*	mg/kg	0.0042	0.0036	15.6	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002 (0.0010)*	mg/kg	0.0088	0.0071	21.6	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5733269) - continued									
ES2411806-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001 (0.005) *	mg/kg	<0.005	<0.005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5733269)									
ES2411612-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2411806-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005 (0.0010)*	mg/kg	<0.0010	<0.0010	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005 (0.0010)*	mg/kg	<0.0010	<0.0010	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005 (0.0010)*	mg/kg	<0.0010	<0.0010	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005 (0.0010)*	mg/kg	0.0038	0.0033	14.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 5727135)									
ES2411410-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.029	0.029	0.0	No Limit
ES2411837-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5727143)									
ES2411748-004	QC300_20240408	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2411919-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5722412)									
ES2411678-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5722412)									
ES2411678-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5722412)									
ES2411678-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5722412) - continued									
ES2411678-001	Anonymous	EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5722412)									
ES2411678-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5721221)									
ES2411678-001	Anonymous	EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5721221)									
ES2411678-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5721221) - continued									
ES2411678-001	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5721222)									
ES2411678-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5722411)									
ES2411820-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2411678-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5721222)									
ES2411678-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5722411)									
ES2411820-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2411678-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5722411)									
ES2411820-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2411678-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5725554)									
ES2411931-005	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5725554) - continued									
ES2411931-005	Anonymous	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2411203-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	<0.05	0.22	126	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	13.2	13.3	1.1	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5725554)									
ES2411931-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2411203-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	0.23	0.25	9.4	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	3.25	3.32	2.3	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	5.02	5.12	1.9	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	0.44	0.47	7.8	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	1.9	1.9	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5725554)									
ES2411931-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2411203-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5722881)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	99.8	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	117	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	132	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	107	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	97.2	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	97.2	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	90.2	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5722883)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	89.0	70.0	125
EP074D: Fumigants (QCLot: 5721144)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	90.7	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	95.3	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	91.6	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	89.5	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 5721144)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	148	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	141	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	134	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	125	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	121	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	111	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	101	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	98.4	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.7	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	93.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	95.3	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	90.5	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	92.2	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	86.9	59.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5721144) - continued								
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	100	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	90.5	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	97.2	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	94.2	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.2	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	90.8	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	83.4	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	91.4	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	98.8	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	86.7	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	90.8	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	90.3	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 5721144)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	97.2	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	96.6	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	93.0	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	95.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	96.7	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	95.6	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	94.9	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.6	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	101	52.0	122
EP074G: Trihalomethanes (QCLot: 5721144)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	95.6	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	90.9	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	87.4	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	85.8	60.0	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5721381)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	89.7	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	93.0	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.0	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	93.4	67.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5721381) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	87.2	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.0	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	86.7	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	96.9	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.0	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	77.2	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	80.3	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	37.2	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5721381)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	93.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.3	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	94.2	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	95.1	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	96.9	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.5	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	95.3	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.7	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.7	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	102	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	90.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.4	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	84.0	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	83.3	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721142)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	82.9	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721143)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.8	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721382)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	112	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	106	71.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721142)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	77.8	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721143)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	82.5	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721382)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	108	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	106	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	111	63.0	131
EP080: BTEXN (QCLot: 5721142)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.3	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.6	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.9	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	106	78.8	122
EP080: BTEXN (QCLot: 5721143)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	104	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	105	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	108	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	114	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	117	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	112	78.8	122
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5733269)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.9	72.0	128
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.0	67.0	130
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5733269)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	88.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.2	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.5	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5733269)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	62.0	145

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5733269) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	99.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	74.0	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	95.9	69.2	143

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5727135)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	105	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.6	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	104	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5727143)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.6	77.0	111
EP074D: Fumigants (QCLot: 5722412)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.1	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	101	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	99.9	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	102	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5722412)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	73.2	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	96.1	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	93.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	99.3	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	98.1	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	97.9	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.2	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	82.8	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	104	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	100	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.4	77.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5722412) - continued								
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	97.4	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	97.3	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	94.3	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	106	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	98.7	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	99.6	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	102	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	101	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	102	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	94.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.6	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	104	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	104	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.0	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	105	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5722412)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	99.9	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	105	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	105	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	107	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	105	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	119	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	119	67.0	123
EP074G: Trihalomethanes (QCLot: 5722412)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	107	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	102	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	97.7	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	94.5	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5721221)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	33.8	24.5	61.9

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5721221) - continued								
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	66.9	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	70.8	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.3	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	67.7	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	76.2	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	72.9	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	70.0	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	72.9	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	81.0	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	74.8	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	43.2	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5721221)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.0	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	77.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	70.8	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	76.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	73.3	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	79.5	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	77.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	81.5	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	66.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	68.8	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	74.7	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	75.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	78.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	68.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	74.9	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	67.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721222)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	68.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.1	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5722411)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5722411) - continued								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	80.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721222)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	64.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	74.7	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	61.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5722411)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.5	75.0	127
EP080: BTEXN (QCLot: 5722411)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	89.5	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.4	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	97.4	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	103	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	109	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5725554)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	79.8	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	89.2	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	86.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5725554)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	89.4	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	91.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.5	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5725554)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	94.6	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	116	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	87.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	89.8	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5722881)							
EB2411885-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	89.4	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	111	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	92.1	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.1	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.8	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5722883)							
ES2411620-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.1	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5721144)							
ES2411748-002	ACM_TP16_0.6-0.8	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	97.5	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	92.8	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5721144)							
ES2411748-002	ACM_TP16_0.6-0.8	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	103	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5721381)							
ES2411720-002	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	89.0	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	93.6	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	80.9	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.7	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.9	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5721381)							
ES2411720-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.7	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721142)							
ES2411715-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.2	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721143)							
ES2411748-002	ACM_TP16_0.6-0.8	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.2	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721382)							
ES2411720-002	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	122	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	124	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	123	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721142)							
ES2411715-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721143)							
ES2411748-002	ACM_TP16_0.6-0.8	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.7	61.1	142

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721382)							
ES2411720-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	113	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	123	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	124	52.0	132
EP080: BTEXN (QCLot: 5721142)							
ES2411715-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.9	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	86.2	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.3	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.8	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	95.6	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.6	61.1	115
EP080: BTEXN (QCLot: 5721143)							
ES2411748-002	ACM_TP16_0.6-0.8	EP080: Benzene	71-43-2	2.5 mg/kg	91.7	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	92.0	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.6	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	101	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	103	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	95.1	61.1	115
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5733269)							
ES2411612-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	77.8	72.0	128
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	80.5	67.0	130
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	80.8	68.0	136
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5733269)							
ES2411612-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	85.8	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	86.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	83.9	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	86.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	89.6	69.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5733269)							
ES2411612-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	83.1	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	98.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	93.0	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	125	69.2	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Acceptable Limits (%) Low	Matrix Spike (MS) Report: Acceptable Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 5727135)							
ES2411410-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	107	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	109	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	102	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.9	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	102	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	104	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5727143)							
ES2411775-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	73.1	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5722412)							
ES2411678-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	98.6	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	99.6	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5722412)							
ES2411678-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	110	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5721221)							
ES2411678-002	Anonymous	EP075(SIM): Phenol	108-95-2	20 µg/L	32.6	20.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	77.0	60.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	71.7	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	78.1	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	51.0	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5721221)							
ES2411678-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	82.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	89.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5721222)							
ES2411678-002	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	103	70.0	130
		EP071: C15 - C28 Fraction	----	250 µg/L	122	71.0	130
		EP071: C29 - C36 Fraction	----	200 µg/L	100	67.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5722411)							
ES2411678-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	83.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5721222)							
ES2411678-002	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	99.7	70.0	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	99.0	75.0	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	101	67.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5722411)							
ES2411678-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	80.8	70.0	130
EP080: BTEXN (QCLot: 5722411)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5722411) - continued							
ES2411678-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	99.3	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	116	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	112	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5725554)							
ES2411931-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	79.3	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	88.7	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	88.5	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5725554)							
ES2411931-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	92.6	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	114	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	95.7	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	95.2	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	96.7	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5725554)							
ES2411931-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	90.1	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	103	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	90.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	97.1	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2411748**	Page	: 1 of 11
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 10-Apr-2024
Site	: Wyong	Issue Date	: 04-Sep-2024
Sampler	: Eric S. & GEO Team	No. of samples received	: 19
Order number	: 60709736	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
ACM_TP16_0.0-0.2, ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19_0.6-0.8, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, QC101_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**----**	----	----	**12-Apr-2024**	22-Apr-2024	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
ACM_TP16_0.0-0.2, ACM_TP19A_1.6-1.7, ACM_CO07_0.325-0.5	**08-Apr-2024**	**----**	----	----	**15-Apr-2024**	05-Oct-2024	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
ACM_TP16_0.0-0.2, ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19_0.6-0.8, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, QC101_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	05-Oct-2024	✓	**15-Apr-2024**	05-Oct-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
ACM_TP16_0.0-0.2, ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19_0.6-0.8, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, QC101_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	06-May-2024	✓	**16-Apr-2024**	06-May-2024	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074)							
ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074)							
ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**12-Apr-2024**	15-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**16-Apr-2024**	25-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
ACM_TP16_0.0-0.2, ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19_0.6-0.8, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408, QC101_20240408, ACM_CO07_0.325-0.5	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**16-Apr-2024**	25-May-2024	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK		**02-Apr-2024**	**12-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
ACM_TP16_0.0-0.2,	ACM_TP16_0.6-0.8,	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
ACM_TP16_1.5-1.7,	ACM_TP19_0.6-0.8,							
ACM_TP19A_1.6-1.7,	ACM_TP19A_2.8-2.9,							
QC100_20240408,	QC101_20240408,							
ACM_CO07_0.325-0.5								
Soil Glass Jar - Unpreserved (EP071)								
ACM_TP16_0.0-0.2,	ACM_TP16_0.6-0.8,	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**15-Apr-2024**	25-May-2024	✓
ACM_TP16_1.5-1.7,	ACM_TP19_0.6-0.8,							
ACM_TP19A_1.6-1.7								
Soil Glass Jar - Unpreserved (EP071)								
ACM_TP19A_2.8-2.9,	QC100_20240408,	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**16-Apr-2024**	25-May-2024	✓
QC101_20240408,	ACM_CO07_0.325-0.5							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK		**02-Apr-2024**	**12-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
Soil Glass Jar - Unpreserved (EP080)								
ACM_TP16_0.0-0.2,	ACM_TP16_0.6-0.8,	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
ACM_TP16_1.5-1.7,	ACM_TP19_0.6-0.8,							
ACM_TP19A_1.6-1.7,	ACM_TP19A_2.8-2.9,							
QC100_20240408,	QC101_20240408,							
ACM_CO07_0.325-0.5								
Soil Glass Jar - Unpreserved (EP071)								
ACM_TP16_0.0-0.2,	ACM_TP16_0.6-0.8,	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**15-Apr-2024**	25-May-2024	✓
ACM_TP16_1.5-1.7,	ACM_TP19_0.6-0.8,							
ACM_TP19A_1.6-1.7								
Soil Glass Jar - Unpreserved (EP071)								
ACM_TP19A_2.8-2.9,	QC100_20240408,	**08-Apr-2024**	**15-Apr-2024**	22-Apr-2024	✓	**16-Apr-2024**	25-May-2024	✓
QC101_20240408,	ACM_CO07_0.325-0.5							
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
TRIP BLANK,	TRIP SPIKE - 17,	**02-Apr-2024**	**12-Apr-2024**	16-Apr-2024	✓	**12-Apr-2024**	16-Apr-2024	✓
TRIP CONTROL SPIKE - 17								
Soil Glass Jar - Unpreserved (EP080)								
ACM_TP16_0.0-0.2,	ACM_TP16_0.6-0.8,	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
ACM_TP16_1.5-1.7,	ACM_TP19_0.6-0.8,							
ACM_TP19A_1.6-1.7,	ACM_TP19A_2.8-2.9,							
QC100_20240408,	QC101_20240408,							
ACM_CO07_0.325-0.5								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408	**08-Apr-2024**	**18-Apr-2024**	05-Oct-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408	**08-Apr-2024**	**18-Apr-2024**	05-Oct-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408	**08-Apr-2024**	**18-Apr-2024**	05-Oct-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) ACM_TP16_0.6-0.8, ACM_TP16_1.5-1.7, ACM_TP19A_1.6-1.7, ACM_TP19A_2.8-2.9, QC100_20240408	**08-Apr-2024**	**18-Apr-2024**	05-Oct-2024	✓	**19-Apr-2024**	28-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) QC300_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**16-Apr-2024**	05-Oct-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) QC300_20240408	**08-Apr-2024**	**----**	----	----	**17-Apr-2024**	06-May-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**15-Apr-2024**	22-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**15-Apr-2024**	22-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**15-Apr-2024**	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	15-Apr-2024	✓	**15-Apr-2024**	22-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240408	**08-Apr-2024**	**12-Apr-2024**	22-Apr-2024	✓	**12-Apr-2024**	22-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**18-Apr-2024**	05-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**18-Apr-2024**	05-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC300_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**18-Apr-2024**	05-Oct-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC300_20240408	**08-Apr-2024**	**16-Apr-2024**	05-Oct-2024	✓	**18-Apr-2024**	05-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	24	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2411748**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 4
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric S. & GEO Team		

Dates

Date Samples Received	: 10-Apr-2024 19:30	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 19-Apr-2024	Scheduled Reporting Date	: **19-Apr-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: 4.5, 4.5, 4.5'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples QC200 and QC201 have been forwarded to Eurofins.**
- This is an updated SRN which indicates the addition of coal tar analysis to sample 5.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **MIS-SOL: Coal Tar analysis to be conducted by Envirolab.**
- **PFAS analysis could not be conducted for sample 15 as no PFAS jar was received.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2411748-019 : [02-Apr-2024] : TRIP CONTROL SPIKE - 17

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP074DEFG (solids) VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	SOIL - EP231 (solids) PFAS - Short Suite (12 analytes)	SOIL - S-26 8 metals/TRH/BTEXN/PAH	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2411748-001	08-Apr-2024 00:00	ACM_TP16_0.0-0.2	✓	✓			✓	
ES2411748-002	08-Apr-2024 00:00	ACM_TP16_0.6-0.8	✓		✓	✓		✓
ES2411748-003	08-Apr-2024 00:00	ACM_TP16_1.5-1.7	✓		✓	✓		✓
ES2411748-007	08-Apr-2024 00:00	ACM_TP19_0.6-0.8	✓				✓	
ES2411748-009	08-Apr-2024 00:00	ACM_TP19A_1.6-1.7	✓	✓	✓	✓		✓
ES2411748-010	08-Apr-2024 00:00	ACM_TP19A_2.8-2.9	✓		✓	✓		✓
ES2411748-011	08-Apr-2024 00:00	QC100_20240408	✓		✓	✓		✓
ES2411748-014	08-Apr-2024 00:00	QC101_20240408	✓				✓	
ES2411748-015	08-Apr-2024 00:00	ACM_CO07_0.325-0.5	✓	✓	✓			✓

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EP080 BTEXN	SOIL - MIS-SOL Miscellaneous Subcontracted Analysis (Solid)	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2411748-005	08-Apr-2024 00:00	ACM_TP19_0.2-0.3			✓	
ES2411748-006	08-Apr-2024 00:00	ACM_TP19_0.3-0.5	✓			
ES2411748-008	08-Apr-2024 00:00	ACM_TP19_0.8-1.0	✓			
ES2411748-012	02-Apr-2024 00:00	TRIP BLANK				✓
ES2411748-013	02-Apr-2024 00:00	TRIP SPIKE 17		✓		
ES2411748-016	08-Apr-2024 00:00	ACM_CO07_0.55-0.65	✓			
ES2411748-017	08-Apr-2024 00:00	R_CO06_1.0-1.5	✓			
ES2411748-018	08-Apr-2024 00:00	R-CO06_0.29-0.3			✓	
ES2411748-019	02-Apr-2024 00:00	TRIP CONTROL SPIKE ...		✓		

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2411748-004	08-Apr-2024 00:00	QC300_20240408	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2411748-004	08-Apr-2024 00:00	QC300_20240408	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Attachment - Report (SUBCO)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Attachment - Report (SUBCO)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

Subcon: [illegible] Lab / Split WO: Asbestos Newcastle AECOM
Lab / Analysis: Enviroks - Coal Tar
Organised By / Date: Eurofins - QC200, QC201
Relinquished By / Date:
Connote / Courier:
WO No:
Attachments: Y / N / Internal Sheets

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC S. & GEOTECH	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (ERIC)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	COAL TAR	TRH/BTEXN PAH/Short	ASBESTOS (AID)	PHENOLS	CHCs	PFAS (short)	C6-C9	ITEXN	HOLD
1	ACM-TP16-0.0-0.2	S	08/04	PM	J	1	X	X	X						
2	-0.6-0.8				J,ZLB,PF	1,1,1		X		X	X	X			
3	-1.5-1.7							X		X	X	X			
4	QC300-20240408	W			P,AG,V,PF	1,1,2,2		X		X	X	X			
5	ACM-TP19-0.2	M			J	1									X
6	-0.3-0.5	S			J,ZLB,PF	1,1,1									X
7	-0.6-0.8							X							
8	-0.8-1.0														X
9	-1.6-1.7							X	X	X	X	X			
10	-2.8-2.9							X		X	X	X			
11	QC100-20240408				J,PF	1,1		X		X	X	X			
X	QC200-20240408		X					X		X	X	X			
12	TRIP BLANK		lab	prep		1							X		
13	TRIP SPIKE												X	X	
14	QC101-20240408	S	8/4	PM	J	1		X							
X	QC201-20240408							X							
15	ACM-CO07-0.33-0.5		7/4	PM	J,ZLB	1,1		X	X	X	X				
16	-0.55-0.65														
17	R-CO06-1.25-1.5														
18	R-CO06-0.3	S	04/04		J	1	X								
19	TRIP CONTROL SPIKE														

→ FORWARD TO EUROFINS (QC200)
→ FORWARD TO EUROFINS (QC201)

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: [illegible]	Date: 10/4/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: AQ	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of

Environmental Division
Sydney
Work Order Reference
ES2411748

Telephone : +61-2-8784 8555

QUALITY CONTROL REPORT

Work Order	: **ES2411983-AA**	Page	: 1 of 14
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
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Project	: 60709736 - CDRL 1100	Date Samples Received	: 11-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 15-Apr-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5734894)									
ES2412255-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2412467-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.001	94.8	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.090	0.067	28.9	0% - 50%
EG020T: Total Metals by ICP-MS (QC Lot: 5736074)									
ES2412245-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5736074) - continued									
ES2412245-003	Anonymous	EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2411949-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001 (0.0010)*	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001 (0.010) *	mg/L	0.264	0.268	1.4	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001 (0.010) *	mg/L	0.017	0.016	6.8	No Limit
		EG020A-T: Lead	7439-92-1	0.001 (0.010) *	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001 (0.010) *	mg/L	0.558	0.564	0.9	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005 (0.052) *	mg/L	0.250	0.253	1.3	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5734895)									
ES2411983-003	A-BH02	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2412255-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5736084)									
ES2411983-009	QC300_20240411	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5739642)									
EW2401677-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2411940-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.05	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074C: Sulfonated Compounds (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5733279)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5733279) - continued									
ES2411983-001	BH30	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5733279)									
ES2411983-001	BH30	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5724460)									
ES2411790-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2411790-024	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5733278)									
ES2412428-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2411983-001	BH30	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5724460)									
ES2411790-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2411790-024	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5733278)									
ES2412428-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2411983-001	BH30	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5724460)									
ES2411790-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2411790-024	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5724460) - continued									
ES2411790-024	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 5733278)									
ES2412428-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2411983-001	BH30	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5737385)									
ES2412287-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	0.46	0.45	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	0.57	0.46	22.3	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	7.18	6.95	3.2	0% - 20%
EN2403274-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.17	0.18	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.08	0.07	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.09	0.08	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5737385)									
ES2412287-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	1.09	1.13	4.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	0.73	0.67	7.6	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	2.37	2.22	6.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	0.52	0.36	37.6	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	<0.2	<0.2	0.0	No Limit
EN2403274-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.14	0.15	0.0	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.11	0.10	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.20	0.21	0.0	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.05	0.06	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.1	0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5737385)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5737385) - continued									
ES2412287-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.26	0.33	21.9	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.06	0.07	25.8	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EN2403274-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5734894)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.3	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.3	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.9	81.0	117
EG020T: Total Metals by ICP-MS (QCLot: 5736074)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.4	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.2	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.3	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.3	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5734895)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.2	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5736084)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	87.1	77.0	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5739642)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	107	90.0	114
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5733279)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	99.2	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	97.6	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	93.6	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	96.9	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	94.6	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.3	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	95.2	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	97.0	71.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5733279) - continued								
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	93.3	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5733279)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	93.9	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	75.2	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.9	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	77.3	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5733279)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.8	72.8	127
EP074D: Fumigants (QCLot: 5733279)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	90.0	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	96.6	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	94.5	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	95.4	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	95.3	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5733279)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	66.8	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	77.9	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	77.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	82.1	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	78.1	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	83.6	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	88.4	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	76.4	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	89.9	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	90.7	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	92.0	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	90.6	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	91.6	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	86.2	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	98.9	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	94.4	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.2	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	101	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	96.6	71.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5733279) - continued								
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	96.9	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	94.2	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	92.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.8	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	104	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	101	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	89.4	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.7	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	99.7	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5733279)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.5	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.7	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	94.7	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	96.8	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.5	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	98.4	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.1	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	109	67.0	123
EP074G: Trihalomethanes (QCLot: 5733279)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	96.6	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	94.5	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	92.9	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	92.7	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5733189)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	34.4	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	68.5	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	67.3	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	58.6	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	65.9	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	67.9	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	66.7	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	69.5	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	70.1	53.0	99.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5733189) - continued								
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	69.2	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	75.6	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	37.4	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5733189)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	72.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	79.0	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	74.6	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	74.9	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	78.6	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	72.9	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	85.1	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	86.7	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	84.3	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	80.2	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	84.2	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	87.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	82.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.7	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	77.2	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	83.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5724460)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	78.5	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5733190)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	72.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	92.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	98.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5733278)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5724460)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	77.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5733190)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	78.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	98.0	57.8	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5733190) - continued								
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	59.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5733278)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.4	75.0	127
EP080: BTEXN (QCLot: 5724460)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	91.7	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	96.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.2	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.4	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	106	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	120	75.5	124
EP080: BTEXN (QCLot: 5733278)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	87.1	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	90.5	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	93.2	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.3	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5737385)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	82.3	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	87.7	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	89.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5737385)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	77.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	87.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	84.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	78.5	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.2	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5737385)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	94.7	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	85.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	80.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	76.8	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5734894)							
ES2411983-002	R-BH10	EG020A-F: Arsenic	7440-38-2	1 mg/L	103	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	101	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.4	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	86.7	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.0	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5736074)							
ES2411949-002	Anonymous	EG020A-T: Arsenic	7440-38-2	10 mg/L	106	70.0	130
		EG020A-T: Cadmium	7440-43-9	2.5 mg/L	103	70.0	130
		EG020A-T: Chromium	7440-47-3	10 mg/L	102	70.0	130
		EG020A-T: Copper	7440-50-8	10 mg/L	105	70.0	130
		EG020A-T: Lead	7439-92-1	10 mg/L	102	70.0	130
		EG020A-T: Nickel	7440-02-0	10 mg/L	103	70.0	130
		EG020A-T: Zinc	7440-66-6	10 mg/L	104	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5734895)							
ES2411983-001	BH30	EG035F: Mercury	7439-97-6	0.01 mg/L	84.8	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5736084)							
ES2412635-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	91.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5739642)							
ES2411940-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	105	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5733279)							
ES2411983-001	BH30	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	107	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	111	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5733279)							
ES2411983-001	BH30	EP074: Chlorobenzene	108-90-7	25 µg/L	112	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5724460)							
ES2411790-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	80.7	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5733278)							
ES2411983-001	BH30	EP080: C6 - C9 Fraction	----	325 µg/L	77.2	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5724460)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5724460) - continued							
ES2411790-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	80.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5733278)							
ES2411983-001	BH30	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	88.7	70.0	130
EP080: BTEXN (QCLot: 5724460)							
ES2411790-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	92.9	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	93.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.1	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	93.6	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	96.8	70.0	130
EP080: BTEXN (QCLot: 5733278)							
ES2411983-001	BH30	EP080: Benzene	71-43-2	25 µg/L	88.2	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	91.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.3	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	105	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	102	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5737385)							
ES2412287-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	75.3	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	74.2	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	71.2	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5737385)							
ES2412287-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	103	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	95.7	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	84.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	100	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	99.2	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5737385)							
ES2412287-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	81.7	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	73.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	95.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	75.4	71.4	144

QUALITY CONTROL REPORT

Work Order	: **ES2411983-AB**	Page	: 1 of 3
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 11-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 18-Apr-2024
C-O-C number	: ----	Issue Date	: 18-Sep-2024
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 5738718)									
EW2401748-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.30	6.45	2.4	0% - 20%
EW2401748-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.19	7.28	1.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5735146)									
ES2411983-002	R-BH10	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	447	456	2.0	0% - 20%
ES2412428-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	30	30	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5735147)									
ES2411983-002	R-BH10	ED045G: Chloride	16887-00-6	1	mg/L	1960	1970	0.5	0% - 20%
ES2412428-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	29	29	0.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5738718)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.7	99.2	101
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5735146)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.5	82.0	122
				<1	500 mg/L	106	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5735147)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	108	80.9	127
				<1	1000 mg/L	104	80.9	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5735146)							
ES2411983-002	R-BH10	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5735147)							
ES2411983-002	R-BH10	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2411983**	Page	: 1 of 11
Amendment	: **3**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 11-Apr-2024
Site	: Wyong	Issue Date	: 18-Sep-2024
Sampler	: ERIC SERTTAS	No. of samples received	: 11
Order number	: 60709736 1.0	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2411983--002	R-BH10	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2411983--002	R-BH10	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / **Container** / Client Sample ID(s)	*Extraction / Preparation*			*Analysis*		
	Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
A-BH02	----	----	----	19-Apr-2024	11-Apr-2024	**8**
Clear Plastic Bottle - Natural						
R-BH10, Existing BH03, R-BH08, Existing BHS01/BHE01, R-BH23	----	----	----	19-Apr-2024	11-Apr-2024	**8**
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved						
BH30, A-BH02	18-Apr-2024	17-Apr-2024	**1**	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
BH30, A-BH02	18-Apr-2024	17-Apr-2024	**1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Amber Glass Bottle - Unpreserved						
BH30	18-Apr-2024	17-Apr-2024	**1**	----	----	----
Amber Glass Bottle - Unpreserved						
A-BH02	18-Apr-2024	17-Apr-2024	**1**	----	----	----
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	15-Apr-2024	08-Apr-2024	**7**	15-Apr-2024	08-Apr-2024	**7**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber Glass Bottle - Unpreserved						
BH30	18-Apr-2024	17-Apr-2024	**1**	----	----	----
Amber Glass Bottle - Unpreserved						
A-BH02	18-Apr-2024	17-Apr-2024	**1**	----	----	----
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	15-Apr-2024	08-Apr-2024	**7**	15-Apr-2024	08-Apr-2024	**7**
EP080: BTEXN						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080: BTEXN - Analysis Holding Time Compliance						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	15-Apr-2024	08-Apr-2024	**7**	15-Apr-2024	08-Apr-2024	**7**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
A-BH02	**10-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	11-Apr-2024	×
Clear Plastic Bottle - Natural (EA005-P)							
R-BH10, Existing BH03, R-BH08, Existing BHS01/BHE01, R-BH23	**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	11-Apr-2024	×
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
A-BH02	**10-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	08-May-2024	✓
Clear Plastic Bottle - Natural (ED041G)							
R-BH10, Existing BH03, R-BH08, Existing BHS01/BHE01, R-BH23	**11-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	09-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
A-BH02		**10-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	08-May-2024	✓
Clear Plastic Bottle - Natural (ED045G)								
R-BH10,	Existing BH03,	**11-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	09-May-2024	✓
R-BH08,	Existing BHS01/BHE01,							
R-BH23								
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Natural (EG020A-F)								
BH30,	A-BH02	**10-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	08-Oct-2024	✓
Clear Plastic Bottle - Natural (EG020A-F)								
R-BH10,	Existing BH03,	**11-Apr-2024**	**----**	----	**----**	**18-Apr-2024**	08-Oct-2024	✓
R-BH23								
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
QC300_20240411		**11-Apr-2024**	**19-Apr-2024**	08-Oct-2024	✓	**19-Apr-2024**	08-Oct-2024	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Natural (EG035F)								
BH30,	A-BH02	**10-Apr-2024**	**----**	----	**----**	**22-Apr-2024**	08-May-2024	✓
Clear Plastic Bottle - Natural (EG035F)								
R-BH10,	Existing BH03,	**11-Apr-2024**	**----**	----	**----**	**22-Apr-2024**	09-May-2024	✓
R-BH23								
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)								
QC300_20240411		**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	09-May-2024	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
BH30		**10-Apr-2024**	**----**	----	**----**	**21-Apr-2024**	08-May-2024	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074)								
BH30		**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
BH30		**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
BH30		**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) Existing BH03, QC300_20240411(N), QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) Existing BH03, QC300_20240411(N), QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) Existing BH03, QC300_20240411(N), QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) Existing BH03, QC300_20240411(N), QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BH30	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) A-BH02	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**20-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**20-Apr-2024**	28-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**15-Apr-2024**	08-Apr-2024	×	**15-Apr-2024**	08-Apr-2024	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) BH30	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) A-BH02	**10-Apr-2024**	**18-Apr-2024**	17-Apr-2024	×	**20-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**20-Apr-2024**	28-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH30, A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) R-BH10, Existing BH03, QC300_20240411(N), R-BH23, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**15-Apr-2024**	08-Apr-2024	×	**15-Apr-2024**	08-Apr-2024	×

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
TRIP SPIKE		**02-Apr-2024**	**15-Apr-2024**	16-Apr-2024	✓	**15-Apr-2024**	16-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
BH30,	A-BH02	**10-Apr-2024**	**18-Apr-2024**	24-Apr-2024	✓	**19-Apr-2024**	24-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
R-BH10, QC300_20240411(N), QC300_20240411	Existing BH03, R-BH23,	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**19-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
TRIP BLANK		**25-Mar-2024**	**15-Apr-2024**	08-Apr-2024	×	**15-Apr-2024**	08-Apr-2024	×
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH30,	A-BH02	**10-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
HDPE (no PTFE) (EP231X)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
BH30,	A-BH02	**10-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
HDPE (no PTFE) (EP231X)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
BH30,	A-BH02	**10-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
HDPE (no PTFE) (EP231X)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
BH30,	A-BH02	**10-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓
HDPE (no PTFE) (EP231X)								
QC300_20240411(N),	QC300_20240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**23-Apr-2024**	08-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	31	**12.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2411983-AA**	Page	: 1 of 17
Amendment	: **5**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 11-Apr-2024 20:00
Order number	: 60709736 1.0	Date Analysis Commenced	: 15-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 15:02
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004, 006. All analysis results are as per the previous report.
- Amendment (DD/MM/YYYY): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on the 2/10/2024 from R-BH10 to BH10. All analysis results are as per the previous report.
- Amendment (02/10/2010): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for sample "Existing BH03" to "Existing BH04". All analysis results are as per the previous report.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- Amendment (17/04/2024): This report has been amended following an updated Chain of Custody provided by Eric Serttas which indicates additional analysis instructions.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**0.0002**	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	**0.002**	<0.001	----
Copper	7440-50-8	0.001	mg/L		<0.001	**0.004**	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L		**0.001**	**0.057**	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.043**	<0.005	<0.005	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.03**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	<5
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	----	<5
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	----	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	<5
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	<5
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	<5
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	<5
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	<5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	<50
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	<50
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	<50
EP074C: Sulfonated Compounds									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP074C: Sulfonated Compounds - Continued									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	<5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	<50	<50	<50
Chloromethane	74-87-3	50	µg/L		<50	----	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L		<50	----	<50	<50	<50
Bromomethane	74-83-9	50	µg/L		<50	----	<50	<50	<50
Chloroethane	75-00-3	50	µg/L		<50	----	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	<5	<5	<5
Iodomethane	74-88-4	5	µg/L		<5	----	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L		<5	----	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L		<5	----	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Tetrachloroethene	127-18-4	5	µg/L		<5	----	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L		<5	----	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	<5	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L		<5	----	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	<5	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		<5	----	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		<5	----	<5	<5	<5
Bromoform	75-25-2	5	µg/L		<5	----	<5	<5	<5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	**2.3**	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	**36.5**	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	**1.0**	**1.0**	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	**1.0**	**1.0**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	**60**	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	**110**	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	**110**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	**70**	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	**70**	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	**150**	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	**150**	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	**150**	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	**2**	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	**2**	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.03**	----	<0.01	----	<0.01
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	----	<0.01	----	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	<0.1	----	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	<0.01	----	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	<0.05	----	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	<0.05	----	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	<0.05	----	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	<0.05	----	<0.05
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.05**	----	<0.01	----	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.05**	----	<0.01	----	<0.01
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**107**	----	**114**	**104**	**104**
Toluene-D8	2037-26-5	5	%		**115**	----	**107**	**95.7**	**98.5**
4-Bromofluorobenzene	460-00-4	5	%		**111**	----	**110**	**100.0**	**100**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**28.5**	**32.0**	**29.6**	**32.8**	**33.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH30	BH10	A-BH02	Existing BH04	QC300_20240411(N)
				Sampling date / time	10-Apr-2024 21:00	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2411983-001	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-007
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	1.0	%		59.0	67.3	68.9	63.0	56.0
2.4.6-Tribromophenol	118-79-6	1.0	%		48.3	51.6	63.0	57.8	33.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		67.6	74.5	76.3	70.2	81.5
Anthracene-d10	1719-06-8	1.0	%		56.0	81.4	64.6	62.2	67.1
4-Terphenyl-d14	1718-51-0	1.0	%		84.0	85.2	93.0	88.4	96.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		97.2	93.8	110	101	100
Toluene-D8	2037-26-5	2	%		99.6	99.0	110	98.2	101
4-Bromofluorobenzene	460-00-4	2	%		111	112	121	110	111
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		86.6	----	86.8	----	85.1
13C8-PFOA	----	0.02	%		88.8	----	94.4	----	95.4

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.002**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.002**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.006**	----	----	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L		----	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		----	<0.005	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	<0.0001	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		----	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		----	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		----	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
p-Isopropyltoluene	99-87-6	5	µg/L		----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	<5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	<5	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		----	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		----	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		----	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		----	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		----	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		----	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		----	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		----	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		----	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	<5	----	----	----
Bromoform	75-25-2	5	µg/L		----	<5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		**210**	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**210**	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**170**	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**170**	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	**18**	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	**16**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	**15**	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	**15**	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	**16**	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	**31**	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	**80**	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	**18**	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	<0.01	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	QC300_20240411	TRIP BLANK	TRIP SPIKE	----
				Sampling date / time	11-Apr-2024 02:00	11-Apr-2024 00:00	25-Mar-2024 21:00	02-Apr-2024 21:00	----
Compound	CAS Number	LOR	Unit		ES2411983-008	ES2411983-009	ES2411983-010	ES2411983-011	--------
					Result	Result	Result	Result	----
EP231P: PFAS Sums - Continued									
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	<0.01	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	107	----	----	----
Toluene-D8	2037-26-5	5	%		----	101	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	104	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		30.6	26.8	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		59.1	46.4	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		55.0	33.7	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		70.2	68.2	----	----	----
Anthracene-d10	1719-06-8	1.0	%		58.4	57.8	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		84.9	82.0	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		102	103	112	102	----
Toluene-D8	2037-26-5	2	%		104	104	103	97.5	----
4-Bromofluorobenzene	460-00-4	2	%		117	117	104	96.3	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	89.8	----	----	----
13C8-PFOA	----	0.02	%		----	94.1	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

CERTIFICATE OF ANALYSIS

Work Order	: **ES2411983-AB**	Page	: 1 of 4
Amendment	: **5**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 11-Apr-2024 20:00
Order number	: 60709736 1.0	Date Analysis Commenced	: 18-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 15:03
Sampler	: ERIC SERTTAS		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ED041G: LOR raised for Sulfate due to sample matrix.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004, 006. All analysis results are as per the previous report.
- Amendment (DD/MM/YYYY): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on the 2/10/2024 from R-BH10 to BH10. All analysis results are as per the previous report.
- Amendment (02/10/2010): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for sample "Existing BH03" to "Existing BH04". All analysis results are as per the previous report.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- Amendment (17/04/2024): This report has been amended following an updated Chain of Custody provided by Eric Serttas which indicates additional analysis instructions.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH10	A-BH02	Existing BH04	R-BH08	Existing BHS01/BHE01
			Sampling date / time	11-Apr-2024 22:40	10-Apr-2024 23:50	11-Apr-2024 00:50	11-Apr-2024 00:00	11-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	ES2411983-002	ES2411983-003	ES2411983-004	ES2411983-005	ES2411983-006
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.85**	**6.03**	**6.62**	**6.33**	**5.23**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**447**	<10	**829**	**1**	**78**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**1960**	**28**	**6040**	**63**	**23**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH23	----	----	----	----
				Sampling date / time	11-Apr-2024 02:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2411983-008	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.93**	**----**	**----**	**----**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**66**	**----**	**----**	**----**	**----**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**107**	**----**	**----**	**----**	**----**

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric)	PHONE: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.seritas@aecom.com , kate.mcgrath@aecom.com, fahim.rashid@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION: Type / Code	Total bottles	Water Aggressivity	TRH/ BTEXN/ PAH/ 6 Metals	Phenols	VOCs	CHCs	C6-C9	BTEXN						HOLD	Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	DH30	W	10/4/24	21:00	V,PF,AG,N,P,SP	2,2,1,1,1,1														HT
2	R-DH10			22:40	V,AG,N,P	2,1,1,1														
3	A-DH02			23:50	V,PF,AG,N,P	2,2,1,1,1														
4	R-CPT06		11/4/24	00:50	V,AG,N,P,SP	2,1,1,1,1														
5	R-DH08				V,AG,N,P,SP	2,1,1,1,1														
6	DH04				V,PF,AG,N,P,SP	2,2,1,1,1,1														
7	QC300-20240411(N)				V,PF,AG,N,P,SP	2,2,1,1,1,1														
8	R-DH23			2:30	V,AG,N,P,SP	2,1,1,1,1														
9	QC200_20240411				V,PF,AG,N,P,SP	2,2,1,1,1,1														
10	TRIP BLANK		lab prepared		V	1						X								
11	TRIP SPIKE	↓	↓		↓	1						X	X							

Environmental Division
Sydney
Work Order Reference
ES2411983

Telephone : +61-2-8784 8555

RELINQUISHED BY	RECEIVED BY	RECEIVED BY	METHOD OF SHIPMENT
Name: ERIC SERITAS	Name:	Name: WW	Con' Note No:
Of:	Of:	Of: AU	Transport Co:
Date: 11/4/24	Date:	Date: 11/4/24	
Time: PM	Time:	Time: 20:00	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.seritas@aecom.com , kate.mcgrath@aecom.com, fahim.rashid@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION: Type / Code	Total bottles	Water Aggressivity	TRH/ BTEXN/ PAH/ 8 Metals Dissolved metals	Phenols	VOCs	CHCs	C6-C9	BTEXN	Ammonia	PFAS (short)				HOLD	Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.
1	DH30	W	10/4/24	21:00	V,PF,AG,N,P,SP	2,2,1,1,1		X	X	X	X			X	X					
2	R-DH10			22:10	V,AG,N,P	2,1,1,1	X	X	X											
3	A-DH02			23:50	V,PF,AG,N,P	2,2,1,1	X	X	X		X				X					
4	R-CPT06		11/4/24	00:50	V,AG,N,P,SP	2,1,1,1,1	X	X	X		X									
5	R-DH05				V,AG,N,P,SP	2,1,1,1,1	X													
6	DH04				V,PF,AG,N,P,SP	2,2,1,1,1	X													
7	QC500-20240411(CN)				V,PF,AG,N,P,SP	2,2,1,1,1	X													
8	R-DH23				V,PF,AG,N,P,SP	2,2,1,1,1		X	X	X	X				X					
				2:30	V,AG,N,P,SP	2,1,1,1,1	X	X	X											
9	QC200_20240411				V,PF,AG,N,P,SP	2,2,1,1,1		X	X	X	X				X					
10	TRIP BLANK		lab prepared		V	1						X								
11	TRIP SPIKE					1						X	X							

Environmental Division
Sydney
Work Order Reference
ES2411983

Telephone : +61-2-8784 8555

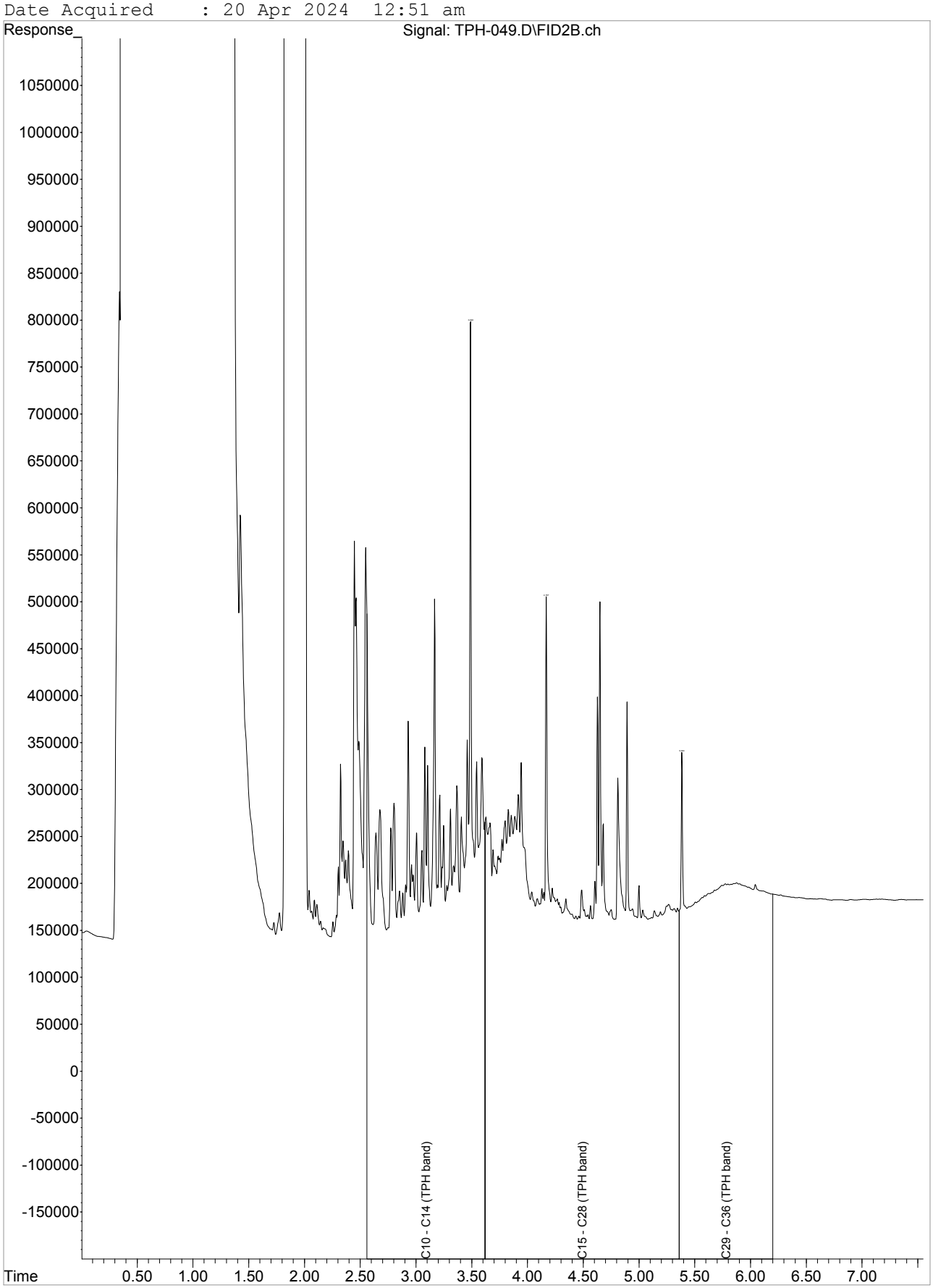
Andrew 17/4/24 2:15pm

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERITAS	Date: 11/4/24	Name:	Date:	Name: WW	Date: 11/4/24	Con' Note No:
Of:	Time: 2pm	Of:	Time:	Of: AU	Time: 2000	Transport Co:

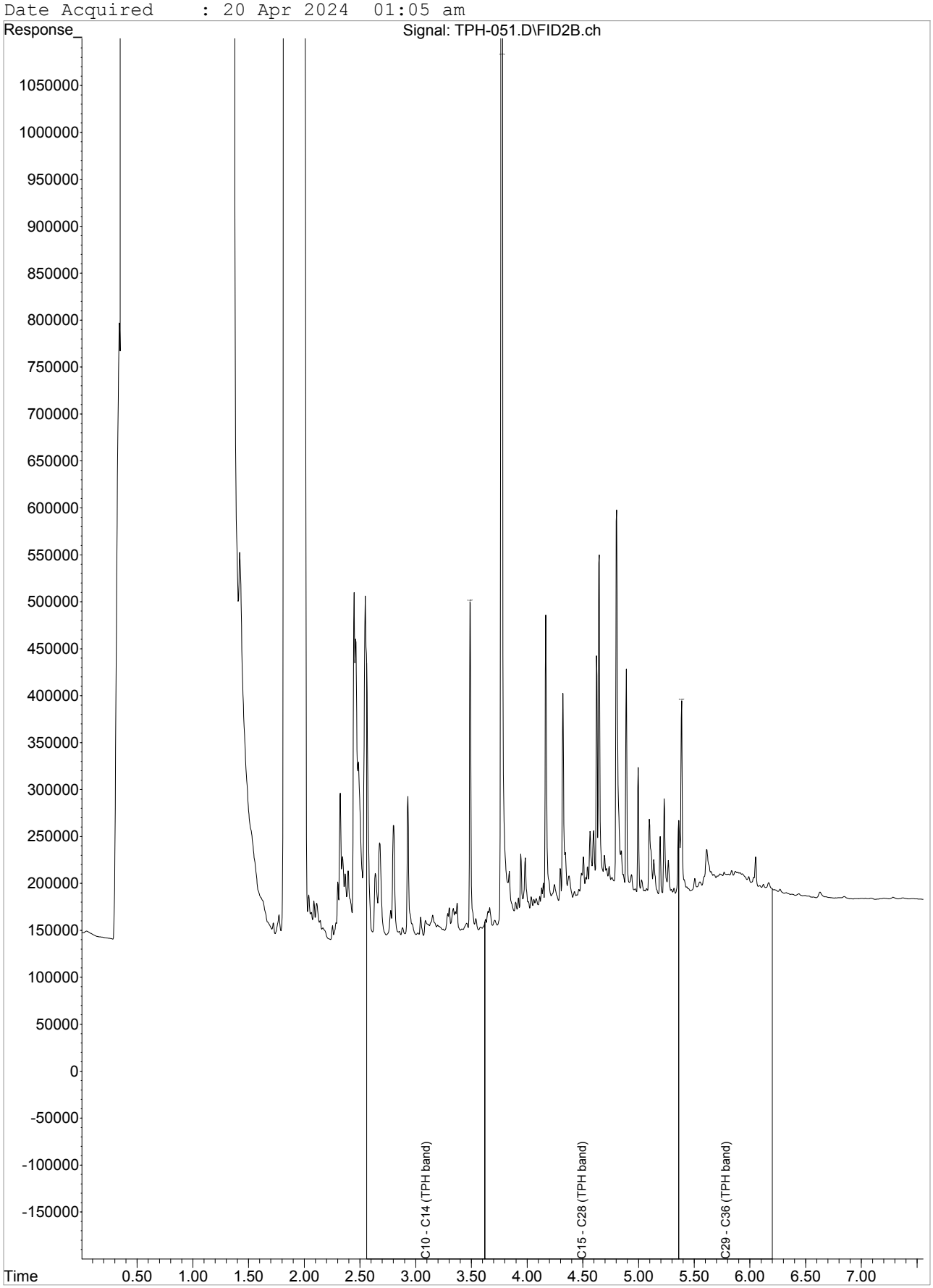
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

Q4AN(EV)-007-FM1 (3)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1: June 15, 2018

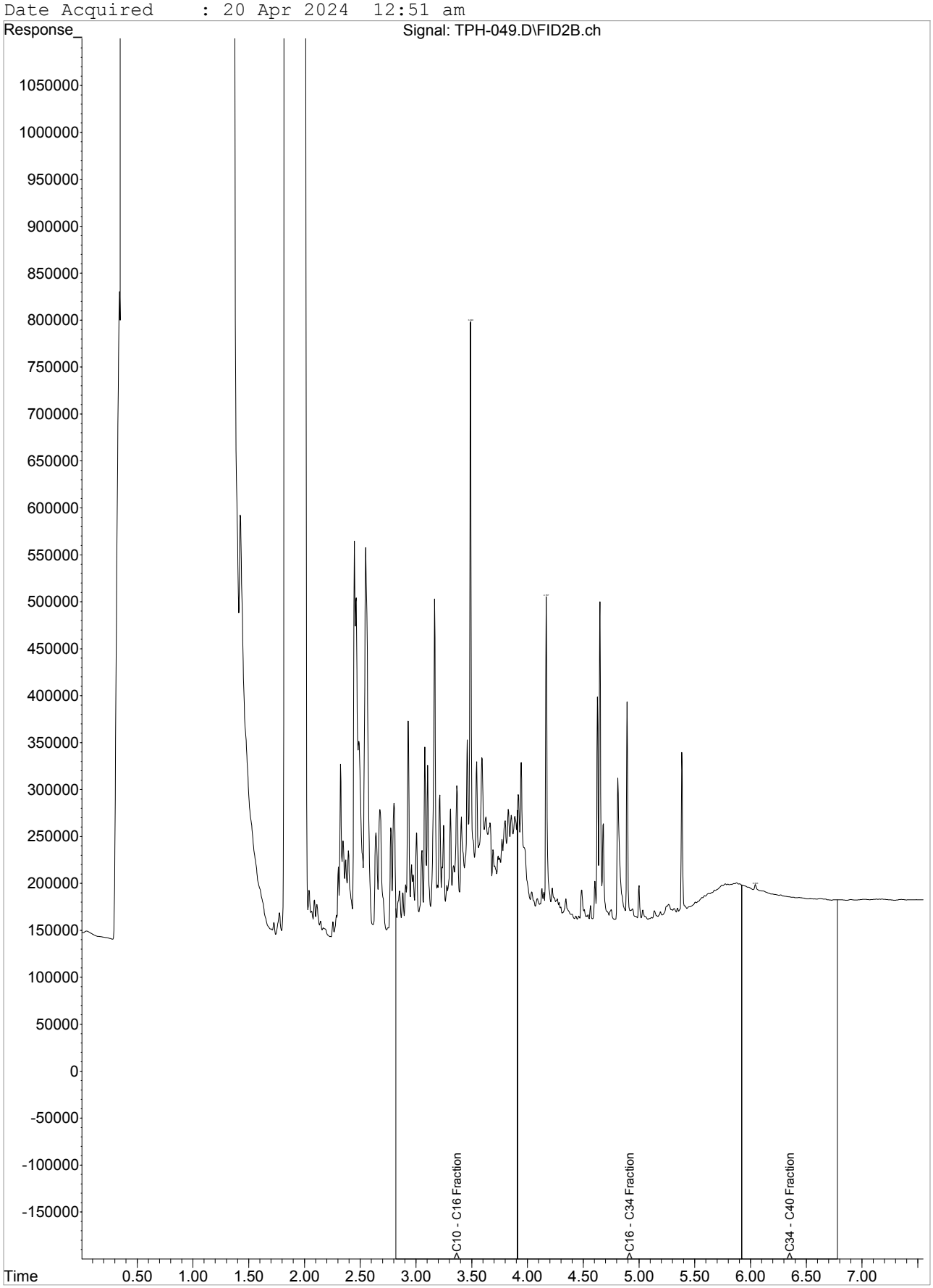
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Laboratory Number: ES2411983-004
Sample ID : R-CPT06
Date Acquired : 20 Apr 2024 12:51 am



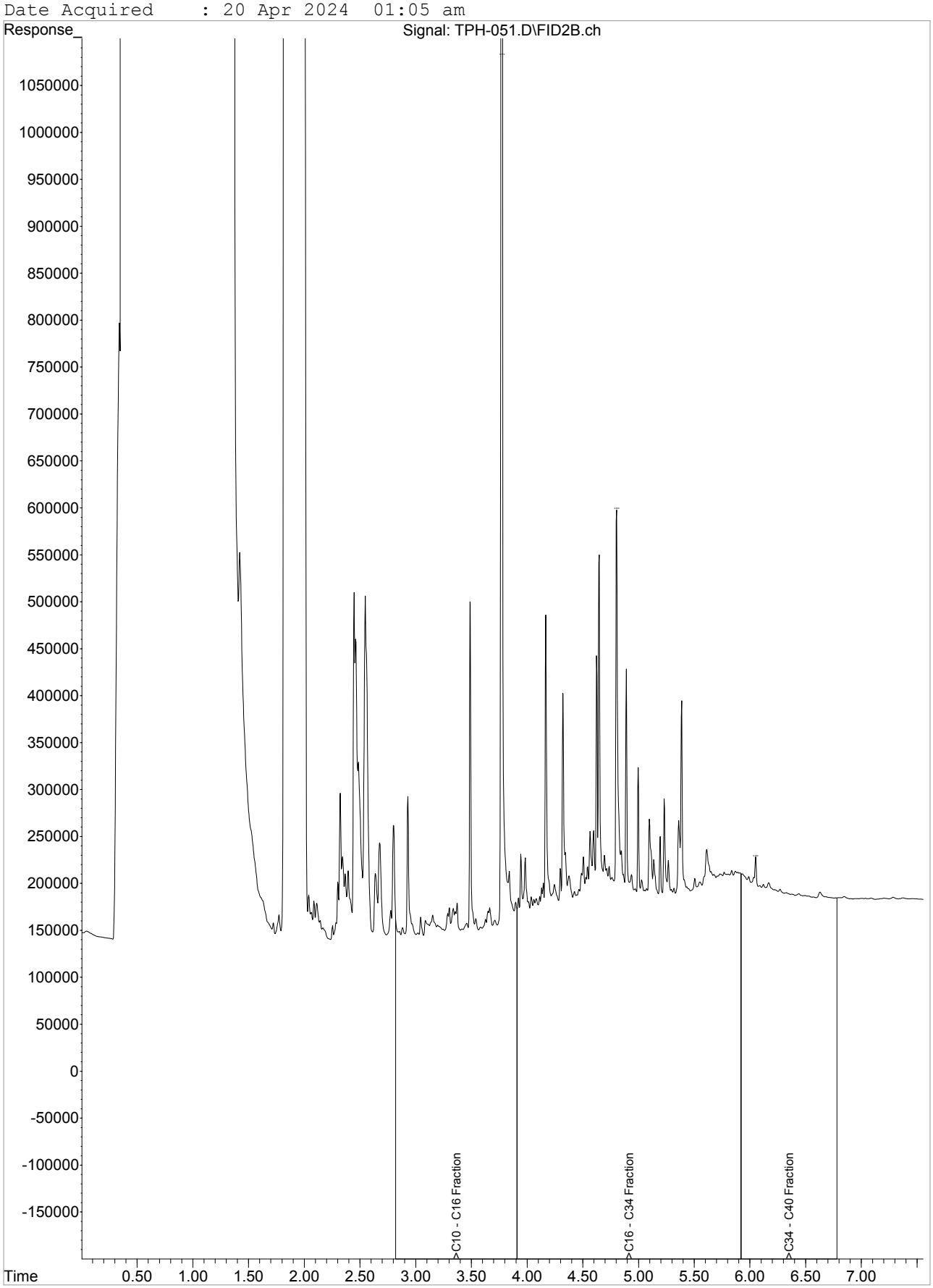
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Laboratory Number: ES2411983-008
Sample ID : R-BH23
Date Acquired : 20 Apr 2024 01:05 am



Fraction Scheme : NEPM
Data File : TPH-049.D
Laboratory Number: ES2411983-004
Sample ID : R-CPT06
Date Acquired : 20 Apr 2024 12:51 am



Fraction Scheme : NEPM
Data File : TPH-051.D
Laboratory Number: ES2411983-008
Sample ID : R-BH23
Date Acquired : 20 Apr 2024 01:05 am



CERTIFICATE OF ANALYSIS

Work Order	: **ES2412153-AA**	Page	: 1 of 15
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 12-Apr-2024 20:00
Order number	: 60709736 1.0	Date Analysis Commenced	: 16-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 14:22
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20mL or 125mL bottles have been tested in accordance with the QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 002-005, 012. All analysis results are as per the previous report.
- Amendment (02/10/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 02/10/24, for samples A-BH03 to A-BH03A. All analysis results are as per the previous report.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.006**	<0.001	**0.004**	**0.001**	**0.002**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**
Chromium	7440-47-3	0.001	mg/L		**0.002**	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		**0.001**	**0.005**	**0.001**	**0.001**	**0.089**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.003**	**0.006**	**0.001**	**0.027**	**0.015**
Zinc	7440-66-6	0.005	mg/L		**0.005**	**0.026**	<0.005	**0.027**	**0.037**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**----**	**0.08**	**----**	**----**	**----**
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	**----**	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	**----**	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	**----**	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	**----**	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	**----**	<5	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	**----**	<50	<50
Chloromethane	74-87-3	50	µg/L		<50	<50	**----**	<50	<50
Vinyl chloride	75-01-4	50	µg/L		<50	<50	**----**	<50	<50
Bromomethane	74-83-9	50	µg/L		<50	<50	**----**	<50	<50
Chloroethane	75-00-3	50	µg/L		<50	<50	**----**	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	**----**	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	**----**	<5	<5
Iodomethane	74-88-4	5	µg/L		<5	<5	**----**	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	**----**	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	----	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	----	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	----	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	----	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	----	<5	<5
Trichloroethene	79-01-6	5	µg/L		<5	<5	----	<5	<5
Dibromomethane	74-95-3	5	µg/L		<5	<5	----	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	----	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	----	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	----	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L		<5	<5	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	----	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	----	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	----	<5	<5
Bromobenzene	108-86-1	5	µg/L		<5	<5	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	----	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	----	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	----	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	----	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	----	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	----	<5	<5
Bromoform	75-25-2	5	µg/L		<5	<5	----	<5	<5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	**1.2**
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	**1.3**	<1.0
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	**1.3**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	**20**
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		**320**	**110**	<100	**190**	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		**320**	**110**	<50	**190**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	**30**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		**320**	**120**	<100	**190**	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**320**	**120**	<100	**190**	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	**4**	**23**
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	**4**	**23**
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.01**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A-BH03A	BH26/GW26	BH27/GW27	BH28/GW28	BH29/GW29
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-001	ES2412153-002	ES2412153-003	ES2412153-004	ES2412153-005
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.01**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.01**	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**114**	**116**	----	**119**	**116**
Toluene-D8	2037-26-5	5	%		**115**	**119**	----	**122**	**119**
4-Bromofluorobenzene	460-00-4	5	%		**116**	**114**	----	**118**	**116**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**29.5**	**32.5**	**25.2**	**30.9**	**29.4**
2-Chlorophenol-D4	93951-73-6	1.0	%		**60.6**	**65.9**	**52.1**	**65.8**	**57.4**
2.4.6-Tribromophenol	118-79-6	1.0	%		**62.9**	**64.2**	**44.5**	**62.1**	**55.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**69.8**	**73.9**	**60.1**	**74.3**	**64.4**
Anthracene-d10	1719-06-8	1.0	%		**65.9**	**84.9**	**61.3**	**67.0**	**59.2**
4-Terphenyl-d14	1718-51-0	1.0	%		**93.9**	**97.3**	**71.0**	**94.0**	**80.5**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**106**	**108**	**110**	**111**	**107**
Toluene-D8	2037-26-5	2	%		**105**	**108**	**107**	**111**	**108**
4-Bromofluorobenzene	460-00-4	2	%		**112**	**111**	**111**	**114**	**111**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.3**	**89.7**	----	----	----
13C8-PFOA	----	0.02	%		**99.9**	**92.4**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L		**0.001**	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		**0.019**	**0.005**	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.024**	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	**0.10**	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	5	µg/L		<5	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	<5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	<5	----	----	----
Bromoform	75-25-2	5	µg/L		<5	<5	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
					ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		**260**	**110**	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		**260**	**110**	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		**270**	**110**	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		**270**	**110**	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	**20**
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	**17**
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	**17**
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	**16**
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	**18**
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	**34**
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	**88**
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	**20**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**0.01**	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	----	----	----
EP231P: PFAS Sums									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	R-BH37	QC100_20240411	QC300_20240411	TRIP BLANK	TRIP SPIKE
				Sampling date / time	12-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	25-Mar-2024 00:00	02-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412153-006	ES2412153-007	ES2412153-009	ES2412153-010	ES2412153-011
					Result	Result	Result	Result	Result
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	0.01	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		119	117	----	----	----
Toluene-D8	2037-26-5	5	%		119	117	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		116	114	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		29.9	28.9	24.7	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		59.4	59.6	34.2	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		58.3	54.4	23.9	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		69.8	68.0	71.7	----	----
Anthracene-d10	1719-06-8	1.0	%		77.8	75.0	56.1	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		90.0	91.3	81.1	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		110	108	102	102	96.6
Toluene-D8	2037-26-5	2	%		109	106	102	104	100
4-Bromofluorobenzene	460-00-4	2	%		113	110	108	100	95.0
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	89.5	----	----	----
13C8-PFOA	----	0.02	%		----	100	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

CERTIFICATE OF ANALYSIS

Work Order	: **ES2412153-AB**	Page	: 1 of 2
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 12-Apr-2024 20:00
Order number	: 60709736 1.0	Date Analysis Commenced	: 19-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 14:23
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Samples not received in a suitable time frame to conduct the analysis XXX within the recommended holding time.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 002-005, 012. All analysis results are as per the previous report.
- Amendment (02/10/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 02/10/24, for samples A-BH03 to A-BH03A. All analysis results are as per the previous report.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- Amendment (18/09/2024): This report has been amended following the request to report specific analytes on a separate COA, received from Fahim Rashid on 27/08/2024.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	A-BH03A	BH29/GW29	R-BH37	----	----
			Sampling date / time	11-Apr-2024 00:00	12-Apr-2024 00:00	12-Apr-2024 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2412153-001	ES2412153-005	ES2412153-006	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**5.83**	**6.29**	**6.05**	**----**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**187**	**3030**	**259**	**----**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**44**	**282**	**41**	**----**	**----**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**18**	**712**	**24**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **ES2412153-AA**	Page	: 1 of 13
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 12-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 16-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5732883)									
ES2412153-001	A-BH03A	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.005	<0.005	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5733005)									
ES2412153-001	A-BH03A	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2412245-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5736401)									
ES2411972-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01 (0.10)*	mg/L	640	675	5.2	0% - 20%
ES2412153-007	QC100_20240411	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.10	0.0	0% - 50%
EP074D: Fumigants (QC Lot: 5731917)									
ES2412153-002	BH26/GW26	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2412255-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074D: Fumigants (QC Lot: 5731917) - continued									
ES2412255-001	Anonymous	EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5731917)									
ES2412153-002	BH26/GW26	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2412255-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5731917) - continued									
ES2412255-001	Anonymous	EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5731917)									
ES2412153-002	BH26/GW26	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2412255-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5731917) - continued									
ES2412255-001	Anonymous	EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5731917)									
ES2412153-002	BH26/GW26	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2412255-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5731678)									
ES2412153-003	BH27/GW27	EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	<2.0	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	<2.0	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5731678)									
ES2412153-003	BH27/GW27	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	<1.0	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5731678) - continued									
ES2412153-003	BH27/GW27	EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	<1.0	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	<1.0	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5728874)									
ES2412076-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EW2401785-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5731680)									
ES2412153-003	BH27/GW27	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5731916)									
ES2412153-002	BH26/GW26	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2412255-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5728874)									
ES2412076-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EW2401785-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5731680)									
ES2412153-003	BH27/GW27	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5731916)									
ES2412153-002	BH26/GW26	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2412255-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5728874)									
ES2412076-004	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	3	2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EW2401785-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5728874) - continued									
EW2401785-001	Anonymous	EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 5731916)									
ES2412153-002	BH26/GW26	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2412255-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	3	3	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5732883)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.6	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.8	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.8	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5733005)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	102	77.0	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5736401)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	103	90.0	114
EP074D: Fumigants (QCLot: 5731917)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	93.4	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	93.4	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	95.4	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	95.5	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	92.4	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5731917)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	94.7	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	93.7	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	92.8	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	94.4	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	96.9	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	93.8	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	93.8	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	90.9	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	94.7	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	96.0	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	92.4	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	91.6	67.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5731917) - continued								
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.0	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.7	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	94.5	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	98.2	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	96.5	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	92.1	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	91.9	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	94.0	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	92.9	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	97.9	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	90.2	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	88.6	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.2	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.5	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	95.6	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5731917)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	94.2	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	99.0	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	98.7	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	97.8	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.2	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	94.5	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	96.7	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	92.3	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	87.2	67.0	123
EP074G: Trihalomethanes (QCLot: 5731917)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	93.4	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.1	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	96.8	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	92.1	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5731678)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	38.5	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	69.1	52.0	90.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5731678) - continued								
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	69.2	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	60.5	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	66.0	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	75.6	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	67.0	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	70.3	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	72.6	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	70.4	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	73.3	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	47.7	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5731678)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	71.2	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	78.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	73.4	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	73.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.4	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	83.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	83.8	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	84.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	75.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	82.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	93.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	81.3	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	72.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	76.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	84.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5728874)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.7	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5731680)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	69.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	92.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	72.5	58.3	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5731916)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5728874)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.5	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5731680)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	73.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	88.7	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	71.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5731916)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	84.0	75.0	127
EP080: BTEXN (QCLot: 5728874)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	108	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	99.3	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	98.2	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.1	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	106	75.5	124
EP080: BTEXN (QCLot: 5731916)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	102	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	105	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	110	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	116	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5733455)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	86.5	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	86.9	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	81.9	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5733455)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	85.9	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	82.5	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	89.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	91.0	71.0	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5733455)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	92.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	88.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	105	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	81.3	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 5732883)							
ES2412153-002	BH26/GW26	EG020A-T: Arsenic	7440-38-2	1 mg/L	123	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	120	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	123	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	126	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	124	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	120	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	122	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5733005)							
ES2412153-002	BH26/GW26	EG035T: Mercury	7439-97-6	0.01 mg/L	73.3	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5736401)							
ES2411972-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5731917)							
ES2412153-002	BH26/GW26	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	88.3	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	102	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5731917)							
ES2412153-002	BH26/GW26	EP074: Chlorobenzene	108-90-7	25 µg/L	111	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5731678)							
ES2412153-005	BH29/GW29	EP075(SIM): Phenol	108-95-2	20 µg/L	32.2	20.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	20 µg/L	75.4	60.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	20 µg/L	70.5	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	20 µg/L	77.8	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	20 µg/L	47.6	20.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5731678)							
ES2412153-005	BH29/GW29	EP075(SIM): Acenaphthene	83-32-9	20 µg/L	88.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	20 µg/L	87.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5728874)							
ES2412076-004	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	88.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5731680)							
ES2412153-005	BH29/GW29	EP071: C10 - C14 Fraction	----	200 µg/L	129	70.0	130
		EP071: C15 - C28 Fraction	----	250 µg/L	125	71.0	130
		EP071: C29 - C36 Fraction	----	200 µg/L	104	67.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5731916)							
ES2412153-002	BH26/GW26	EP080: C6 - C9 Fraction	----	325 µg/L	80.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5728874)							
ES2412076-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	87.9	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5731680)							
ES2412153-005	BH29/GW29	EP071: >C10 - C16 Fraction	----	250 µg/L	88.7	70.0	130
		EP071: >C16 - C34 Fraction	----	350 µg/L	118	75.0	130
		EP071: >C34 - C40 Fraction	----	150 µg/L	105	67.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5731916)							
ES2412153-002	BH26/GW26	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	75.5	70.0	130
EP080: BTEXN (QCLot: 5728874)							
ES2412076-004	Anonymous	EP080: Benzene	71-43-2	25 µg/L	105	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	97.9	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	104	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	105	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	101	70.0	130
EP080: BTEXN (QCLot: 5731916)							
ES2412153-002	BH26/GW26	EP080: Benzene	71-43-2	25 µg/L	99.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	96.5	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	102	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	99.9	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	122	70.0	130

QUALITY CONTROL REPORT

Work Order	: **ES2412153-AB**	Page	: 1 of 3
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 12-Apr-2024
Order number	: 60709736 1.0	Date Analysis Commenced	: 19-Apr-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024
Sampler	: ----		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA005P: pH by PC Titrator (QC Lot: 5738136)									
ES2412059-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.81	7.87	0.8	0% - 20%
ES2412075-006	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.14	7.17	0.4	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5738133)									
ES2412624-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1040	1030	1.0	0% - 20%
ME2400652-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3870	3920	1.4	0% - 20%
ME2400652-012	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1430	1440	1.1	0% - 20%
ES2412059-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	42300	42200	0.2	0% - 20%
ES2412075-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	92	90	2.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5736415)									
ES2411972-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1 (10)*	mg/L	800	777	2.9	0% - 20%
ES2412624-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	166	186	10.8	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5736419)									
ES2412113-012	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	39	38	2.8	0% - 20%
ES2412624-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	241	242	0.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5738136)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.3	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5738133)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	99.7	89.9	110
				<1	2100 µS/cm	102	90.2	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5736415)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	95.7	82.0	122
				<1	500 mg/L	98.3	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5736419)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	103	80.9	127
				<1	1000 mg/L	97.9	80.9	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5736415)							
ES2411972-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5736419)							
ES2412113-012	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	80.1	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2412153**	Page	: 1 of 11
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 12-Apr-2024
Site	: Wyong	Issue Date	: 02-Oct-2024
Sampler	: ----	No. of samples received	: 11
Order number	: 60709736 1.0	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2411972--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK055G: Ammonia as N by Discrete Analyser	ES2411972--002	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
A-BH03A	----	----	----	19-Apr-2024	11-Apr-2024	**8**
Clear Plastic Bottle - Natural						
BH29/GW29, R-BH37	----	----	----	19-Apr-2024	12-Apr-2024	**7**
EP080/071: Total Petroleum Hydrocarbons						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	16-Apr-2024	08-Apr-2024	**8**	16-Apr-2024	08-Apr-2024	**8**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	16-Apr-2024	08-Apr-2024	**8**	16-Apr-2024	08-Apr-2024	**8**
EP080: BTEXN						
Amber VOC Vial - Sulfuric Acid						
TRIP BLANK	16-Apr-2024	08-Apr-2024	**8**	16-Apr-2024	08-Apr-2024	**8**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) A-BH03A	**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	11-Apr-2024	×
Clear Plastic Bottle - Natural (EA005-P) BH29/GW29, R-BH37	**12-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	12-Apr-2024	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) A-BH03A	**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	09-May-2024	✓
Clear Plastic Bottle - Natural (EA010-P) BH29/GW29, R-BH37	**12-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	10-May-2024	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) A-BH03A	**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	09-May-2024	✓
Clear Plastic Bottle - Natural (ED041G) BH29/GW29, R-BH37	**12-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	10-May-2024	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) A-BH03A	**11-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	09-May-2024	✓
Clear Plastic Bottle - Natural (ED045G) BH29/GW29, R-BH37	**12-Apr-2024**	**----**	----	**----**	**19-Apr-2024**	10-May-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	08-Oct-2024	✓	**18-Apr-2024**	08-Oct-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	09-Oct-2024	✓	**18-Apr-2024**	09-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**----**	----	----	**19-Apr-2024**	09-May-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**----**	----	----	**19-Apr-2024**	10-May-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) BH26/GW26, QC100_20240411	**11-Apr-2024**	**----**	----	----	**19-Apr-2024**	09-May-2024	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP074) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	19-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	19-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	19-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**16-Apr-2024**	08-Apr-2024	×	**16-Apr-2024**	08-Apr-2024	×

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	18-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber Glass Bottle - Unpreserved (EP071) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	19-Apr-2024	✓	**19-Apr-2024**	28-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**16-Apr-2024**	08-Apr-2024	×	**16-Apr-2024**	08-Apr-2024	×
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TRIP SPIKE	**02-Apr-2024**	**16-Apr-2024**	16-Apr-2024	✓	**16-Apr-2024**	16-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) A-BH03A, BH26/GW26, BH27/GW27, QC100_20240411, QC300_20240411	**11-Apr-2024**	**18-Apr-2024**	25-Apr-2024	✓	**18-Apr-2024**	25-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH28/GW28, BH29/GW29, R-BH37	**12-Apr-2024**	**18-Apr-2024**	26-Apr-2024	✓	**18-Apr-2024**	26-Apr-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) TRIP BLANK	**25-Mar-2024**	**16-Apr-2024**	08-Apr-2024	×	**16-Apr-2024**	08-Apr-2024	×
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	08-Oct-2024	✓	**22-Apr-2024**	08-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	08-Oct-2024	✓	**22-Apr-2024**	08-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	08-Oct-2024	✓	**22-Apr-2024**	08-Oct-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) A-BH03A, BH26/GW26, QC100_20240411	**11-Apr-2024**	**18-Apr-2024**	08-Oct-2024	✓	**22-Apr-2024**	08-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	5	43	**11.63**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	43	**9.30**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2412153**		
Amendment	: **4**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ----	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736 1.0	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	:		

Dates

Date Samples Received	: 12-Apr-2024 20:00	Issue Date	: 02-Oct-2024
Client Requested Due Date	: 22-Apr-2024	Scheduled Reporting Date	: **18-Sep-2024**

Delivery Details

Mode of Delivery	: Pickup	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 0.5'C, 1.3 & 1.5'C - Ice present
Receipt Detail	: ICE + ICEBRICK	No. of samples received / analysed	: 11 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- This is an updated SRN to correct sample ID for A-BH03 to A-BH03A as per Fahim Rashid on 2/10/24.
- Sample ID RBH28_1.5-2.5 was received as extra.
- Updated SRN: Unable to conduct Ammonia & PFAS Short suite analysis for sample 9 as the purple plastic & Plastic Pfas bottle was not received.
- Sample ID QC200_20240411 will be forwarded to Eurofins as per Client.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested
ES2412153-012	07-Mar-2024 00:00	R-BH28_1.5-2.5	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - ED041G Sulfate (Turbidimetric) as SO4 2 by Discrete	WATER - ED045G Chloride by Discrete Analyser	WATER - EP074DEFG VOC - Fumigants, Hal Aliphatics, Hal Aromatics,	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - W-27T TRH/BTEXN/PAH/Phenols/Total 8 Metals
ES2412153-001	11-Apr-2024 00:00	A-BH03A	✓	✓	✓	✓	✓	✓	✓
ES2412153-002	11-Apr-2024 00:00	BH26/GW26					✓	✓	✓
ES2412153-003	11-Apr-2024 00:00	BH27/GW27							✓
ES2412153-004	12-Apr-2024 00:00	BH28/GW28					✓		✓
ES2412153-005	12-Apr-2024 00:00	BH29/GW29	✓	✓	✓	✓	✓		✓
ES2412153-006	12-Apr-2024 00:00	R-BH37	✓	✓	✓	✓	✓		✓
ES2412153-007	11-Apr-2024 00:00	QC100_20240411					✓	✓	✓
ES2412153-009	11-Apr-2024 00:00	QC300_20240411							✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2412153-002	11-Apr-2024 00:00	BH26/GW26	✓		
ES2412153-007	11-Apr-2024 00:00	QC100_20240411	✓		
ES2412153-010	25-Mar-2024 00:00	TRIP BLANK			✓
ES2412153-011	02-Apr-2024 00:00	TRIP SPIKE		✓	

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EP080: TRH Volatiles/BTEX							
TRIP BLANK	Amber VOC Vial - Sulfuric Acid	08-Apr-2024	08-Apr-2024	12-Apr-2024	×	17-Apr-2024	×
TRIP SPIKE	Amber VOC Vial - Sulfuric Acid	16-Apr-2024	16-Apr-2024	12-Apr-2024	✓	17-Apr-2024	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

FAHIM RASHID

- *AU Certificate of Analysis - NATA (COA)	Email	fahim.rashid@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fahim.rashid@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fahim.rashid@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fahim.rashid@aecom.com
- Chain of Custody (CoC) (COC)	Email	fahim.rashid@aecom.com
- Chromatogram (CHROM)	Email	fahim.rashid@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	fahim.rashid@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- Chromatogram (CHROM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com, fahim.rashid@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Water Aggressivity	TRH/ BTEX/ PAH/ 8 Metals	Phenols	VOCs	OHCs	C6-C9	BTEXN	C6-C9					HOLD
1	A-BH01	W	11/6/24		V,AG,N,P,SP,PF	2,1,1,1,1	X												
2	BH26				"	2,1,1,1,1													
3	BH27				V,AG,N,P,SP	3,2,1,1,1													
4	BH28		12/6/24		"	"													
5	BH29		↓		↓	↓	X												
6	A-BH27		↓		V,AG,N,P,SP	2,1,1,1,1	X												
7	QC100-20240411		11/6/24	PM	V,AG,N,P,SP,PF	2,1,1,1,2													
8	QC200-20240411					↓													
9	QC300-20240411		↓	↓	V,AG,N,~~SP~~	2,1													
10	TRIP BLANK																		X
11	TRIP SPIKE													X					X
													X	X					X
																			X
12	RBH28 - 1.5 - 2.5				Received	9,3	~~EXHq~~												

HT

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Serttas	Date: 12/6/24	Name:	Date:	Name: Lucas	Date: 2/4/24	Con' Note No:
Of:	Time: pm	Of:	Time:	Of: ALS	Time: 2000	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

Environmental Division
Sydney
Work Order Reference
ES2412153

Telephone : +61-2-8784 8555

UPDATED COC

AECOM

ANZ

FQM - Generic Chain of Custody Form

D4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68((Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serifas@aecom.com , kate.mcgrath@aecom.com, fahim.rashid@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected" Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Water Aggressivity	TRH/ BTEX/ PAH/ 8 Metals	Phenols	VOCs	CHCs	C6-C9	BTEXN	C6-C9		PFAS (short)	Ammonia		HOLD
1	A-BH01	W	11/6/24		V,AG,N,P,SP,PF	2,1,1,1,2		X	X		X					X			
2	BH26				"	2,1,1,1,2		X	X		X					X	X		
3	BH27				V,AG,N,P,SP	3,2,1,1		X	X										
4	BH28		12/6/24		"	"		X	X		X								
5	BH29		"		"	"	X	X	X		X								
6	A-BH27		"		V,AG,N,P,SP	2,1,1,1		X	X		X								
7	QC105-20240411		11/6/24	PM	V,AG,N,P,SP,PF	2,1,1,1,2		X	X		X					X	X		
8	QC200-20240411		"	"	"	"		X	X		X					X	X		
9	QC201-20240411		"	"	V,AG,N,SP	2,1		X	X							X	X		
10	TRIP BLANK																		X
11	TRIP SPIKE													X					X
													X	X					X
																			X
12	RBHZB -1.5 -2.5				Received	4X		X	X										

HT

Subcon / Forward Lab / Split WO
Lab / Analysis: QC200-20240411 / EUROFINS
Organised By / Date:
Relinquished By / Date:

Andrew 2:15 pm

RELINQUISHED BY:		RECEIVED BY:		RELEASED BY:		METHOD OF SHIPMENT
Name: ERIC SERIFAS	Date: 12/6/24	Name:	Date:	Name: LUCAS	Date: 2/4/24	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: ALS	Time: 2000	Transport Co:

Connote / Courier:
WO No: ES2412153
Attached By PO / Internal Sheet:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sulfuric Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag; PFAS Jar Soil Container Codes: Jar = Unpreserved plastic jar

COC Page 1 of 1

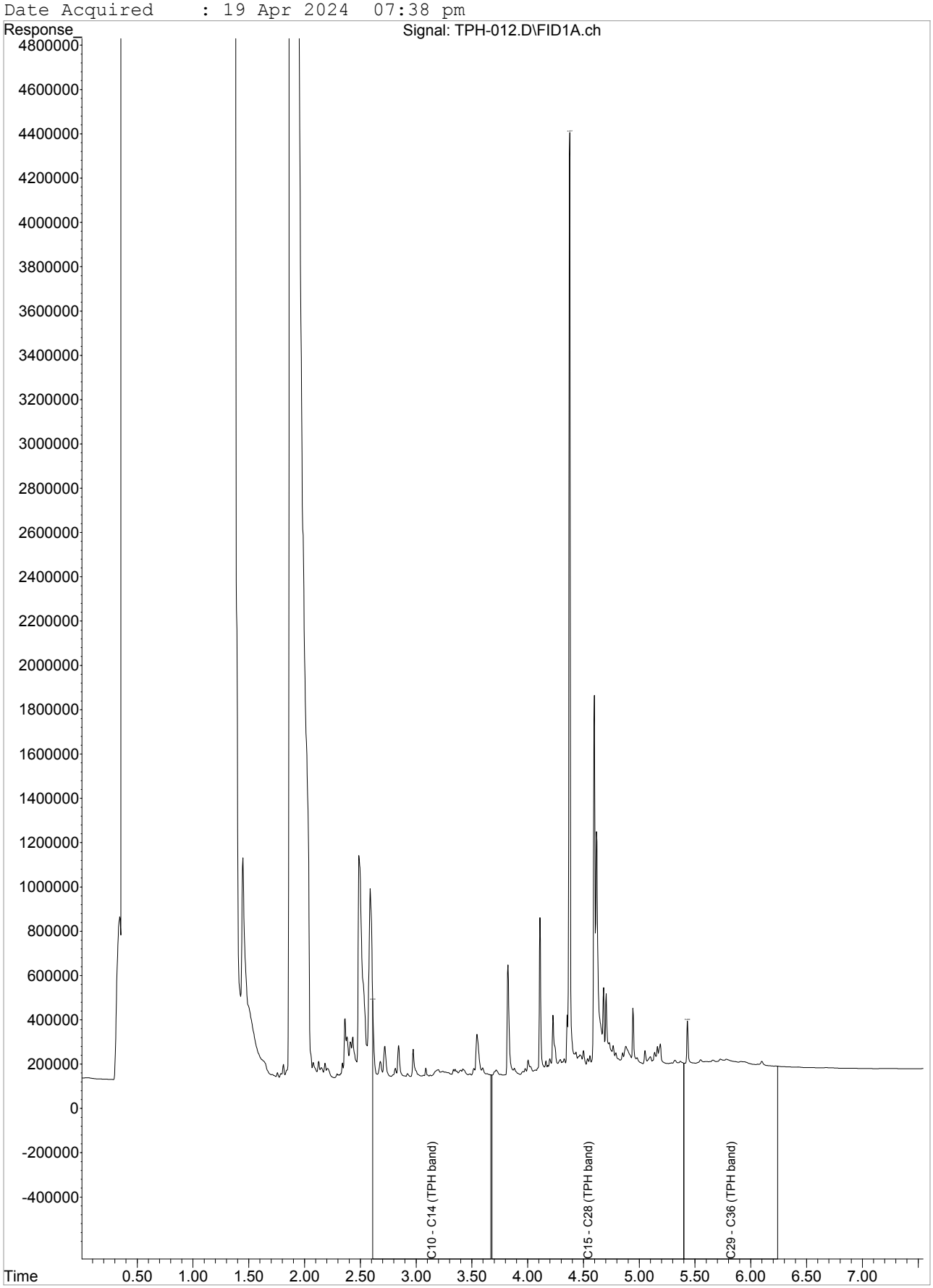
Environmental Division
Sydney
Work Order Reference
ES2412153

Telephone : +61-2-8784 8555

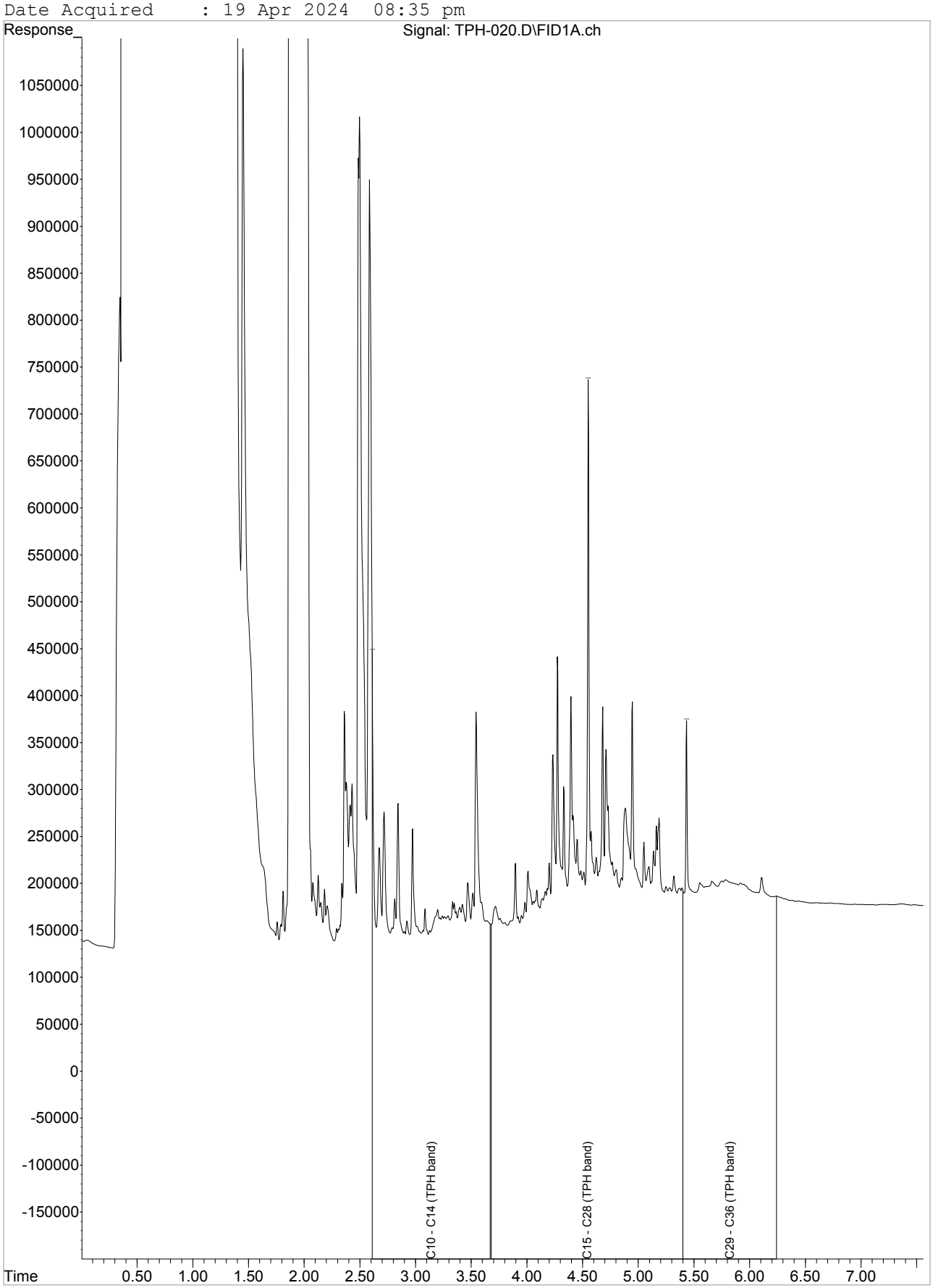
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FQM - Generic Chain of Custody Form (D4AN(EV)-007-FM1)
Revision 1 June 01 2016

Page 1 of 1

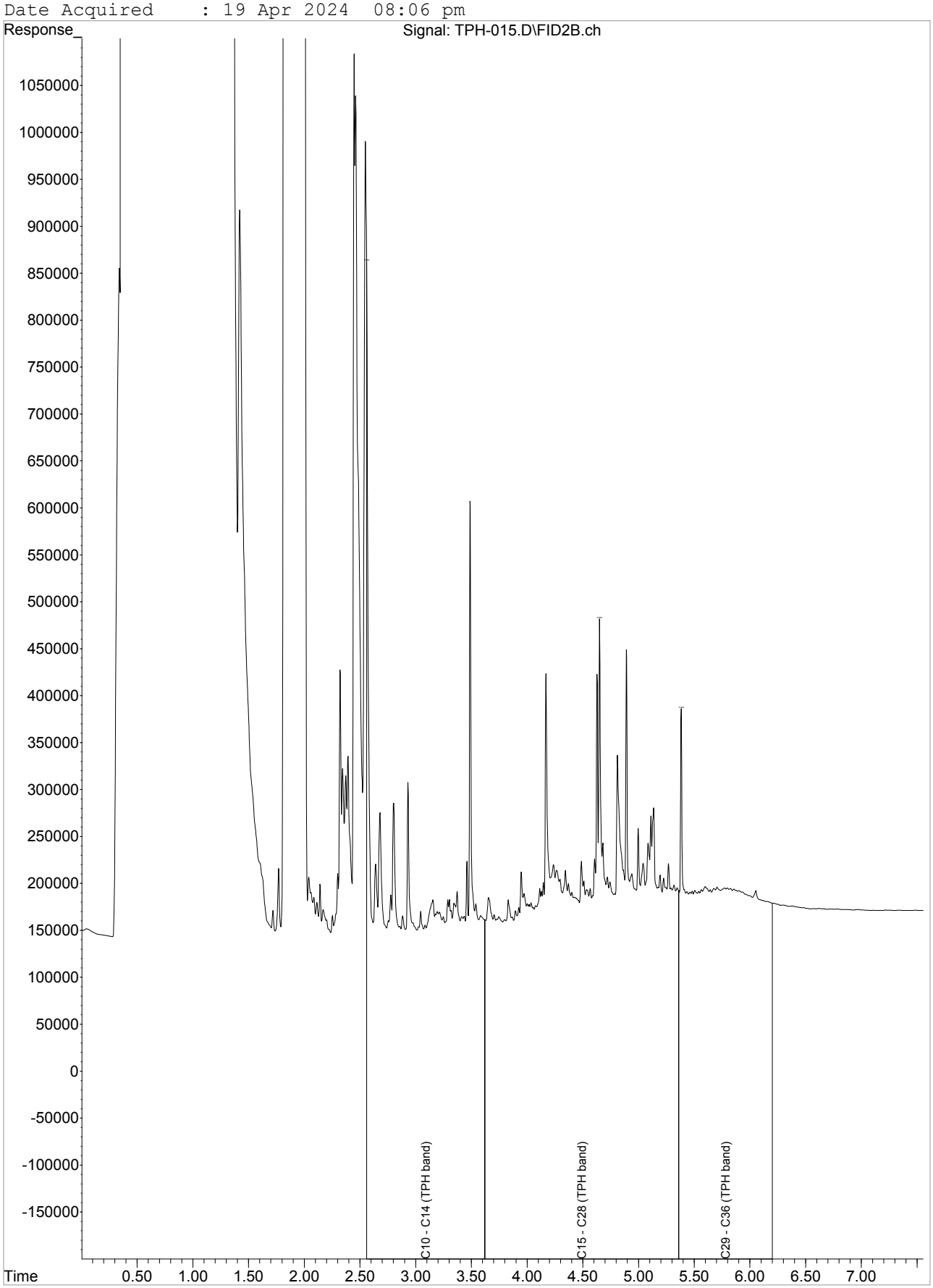
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Sample ID : A-BH03
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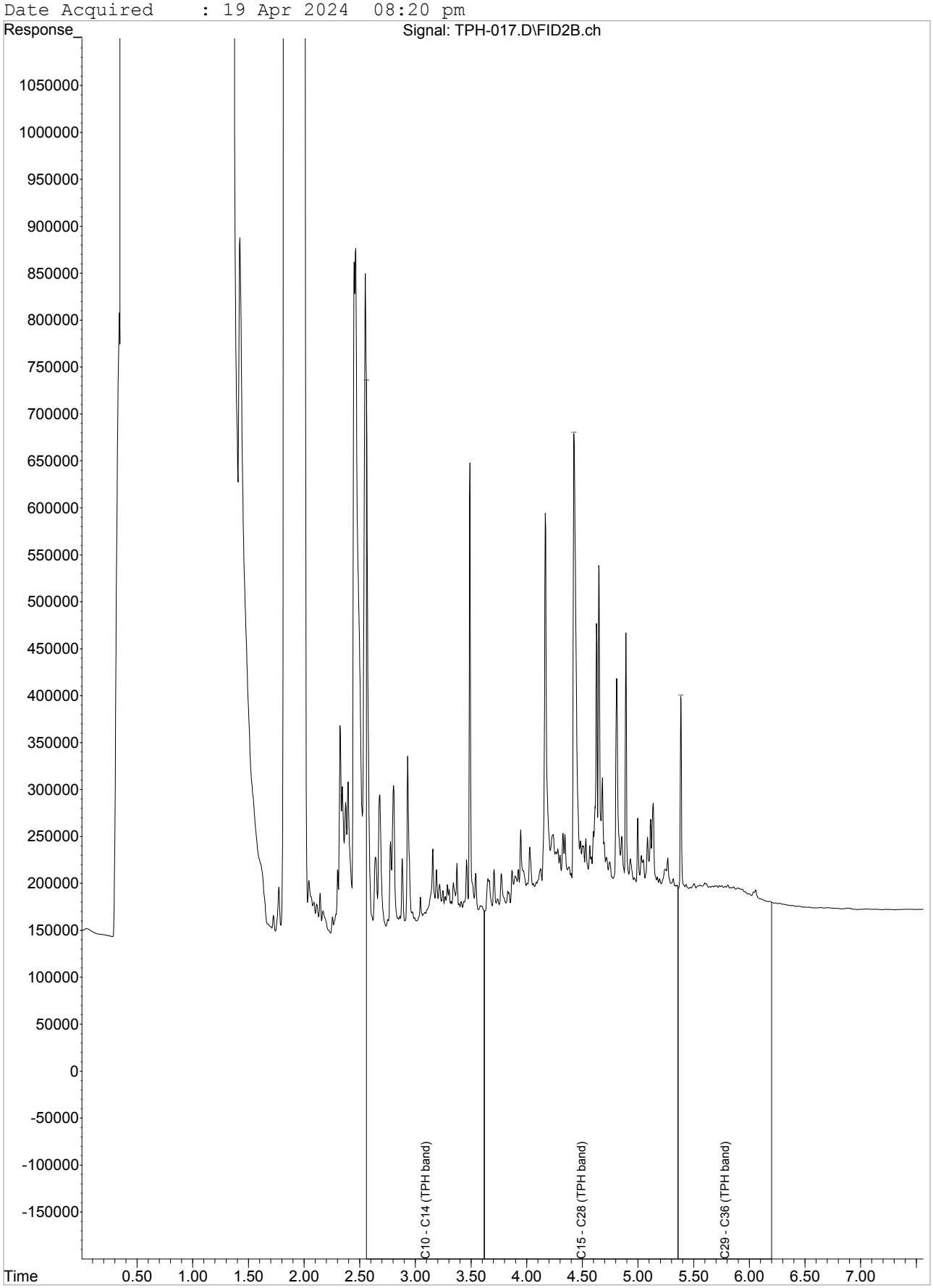
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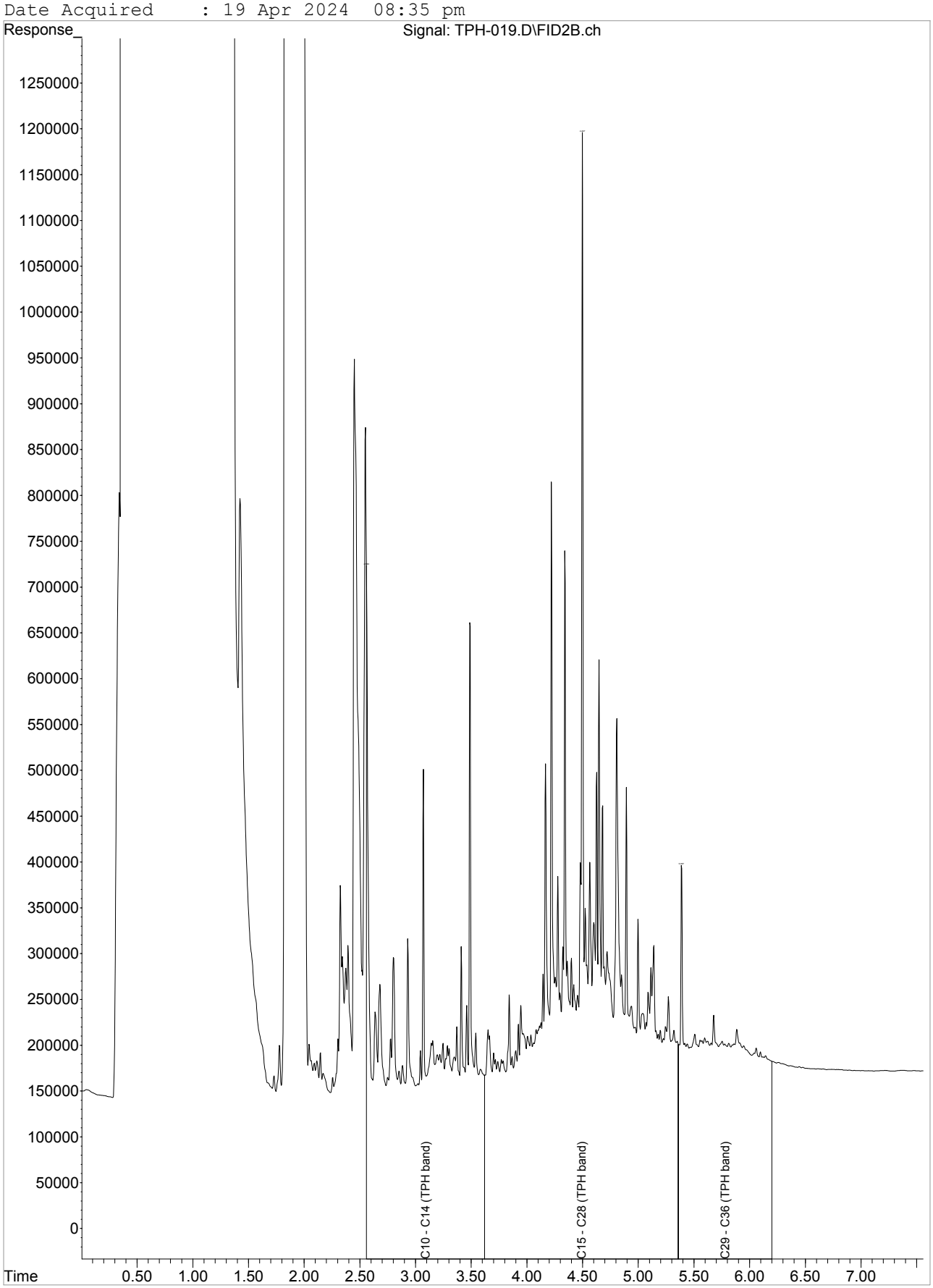
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Sample ID : BH26
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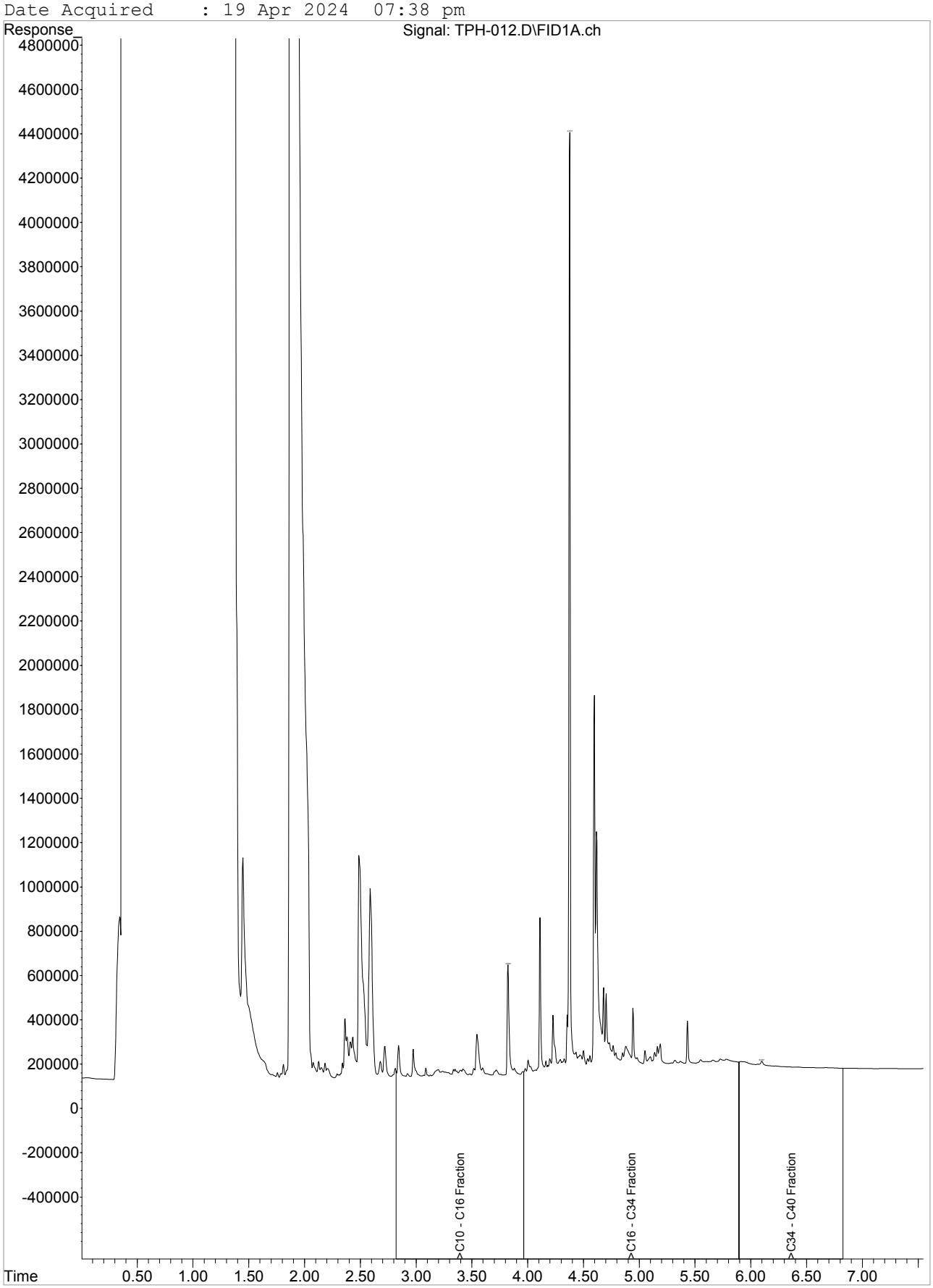
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Sample ID : BH28
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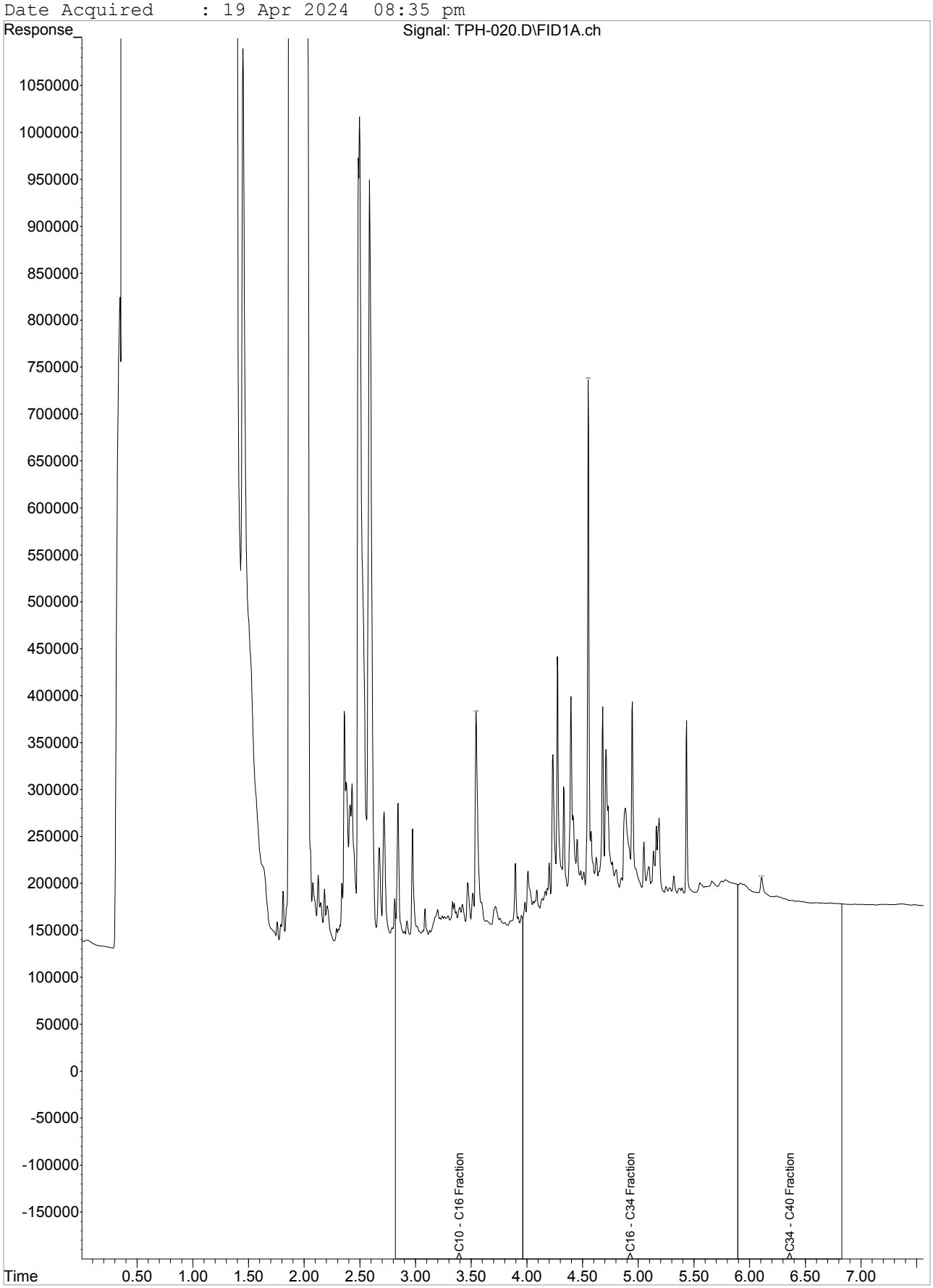
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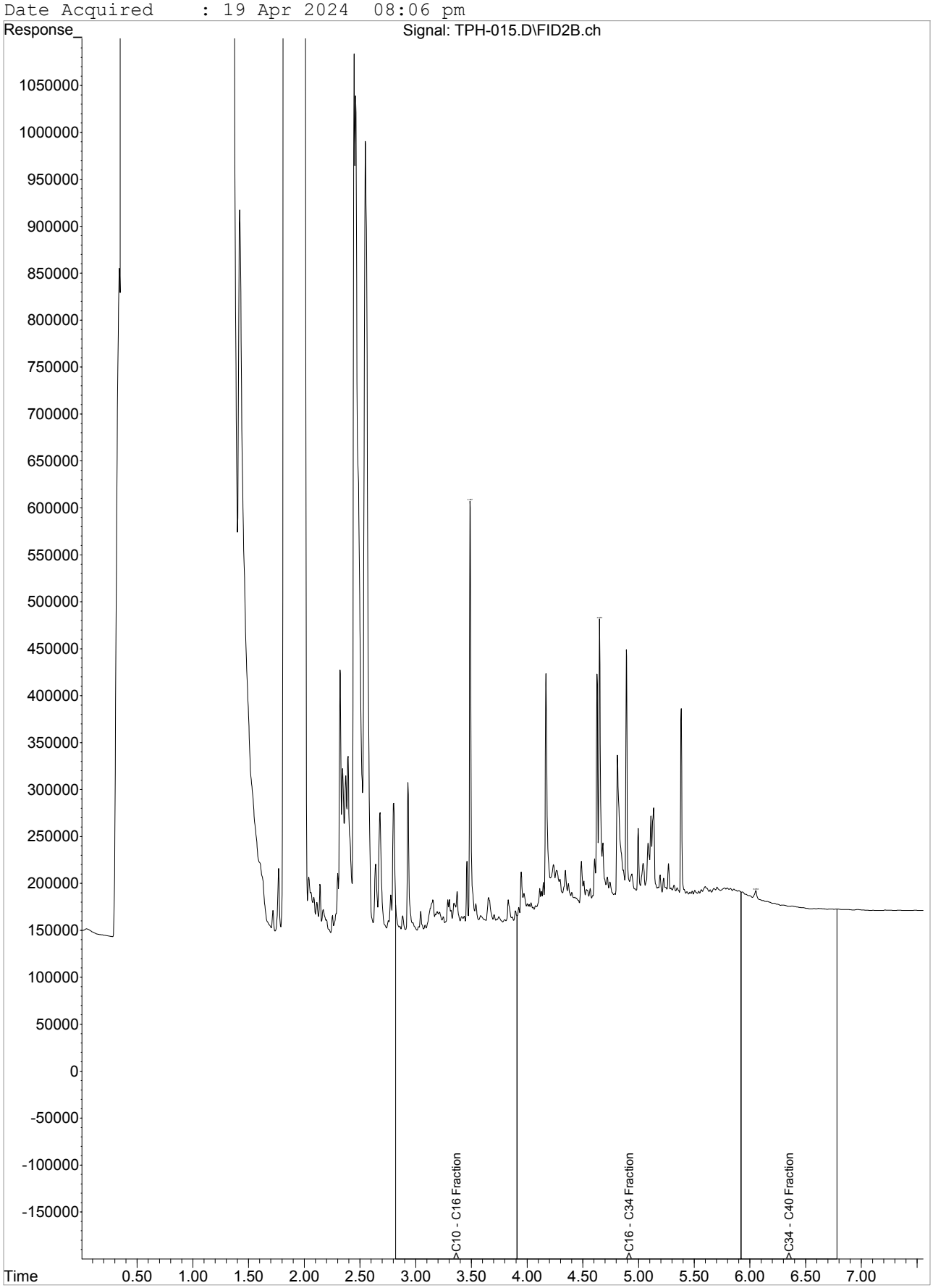
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Laboratory Number: ES2412153-001
Sample ID : A-BH03
Date Acquired : 19 Apr 2024 07:38 pm



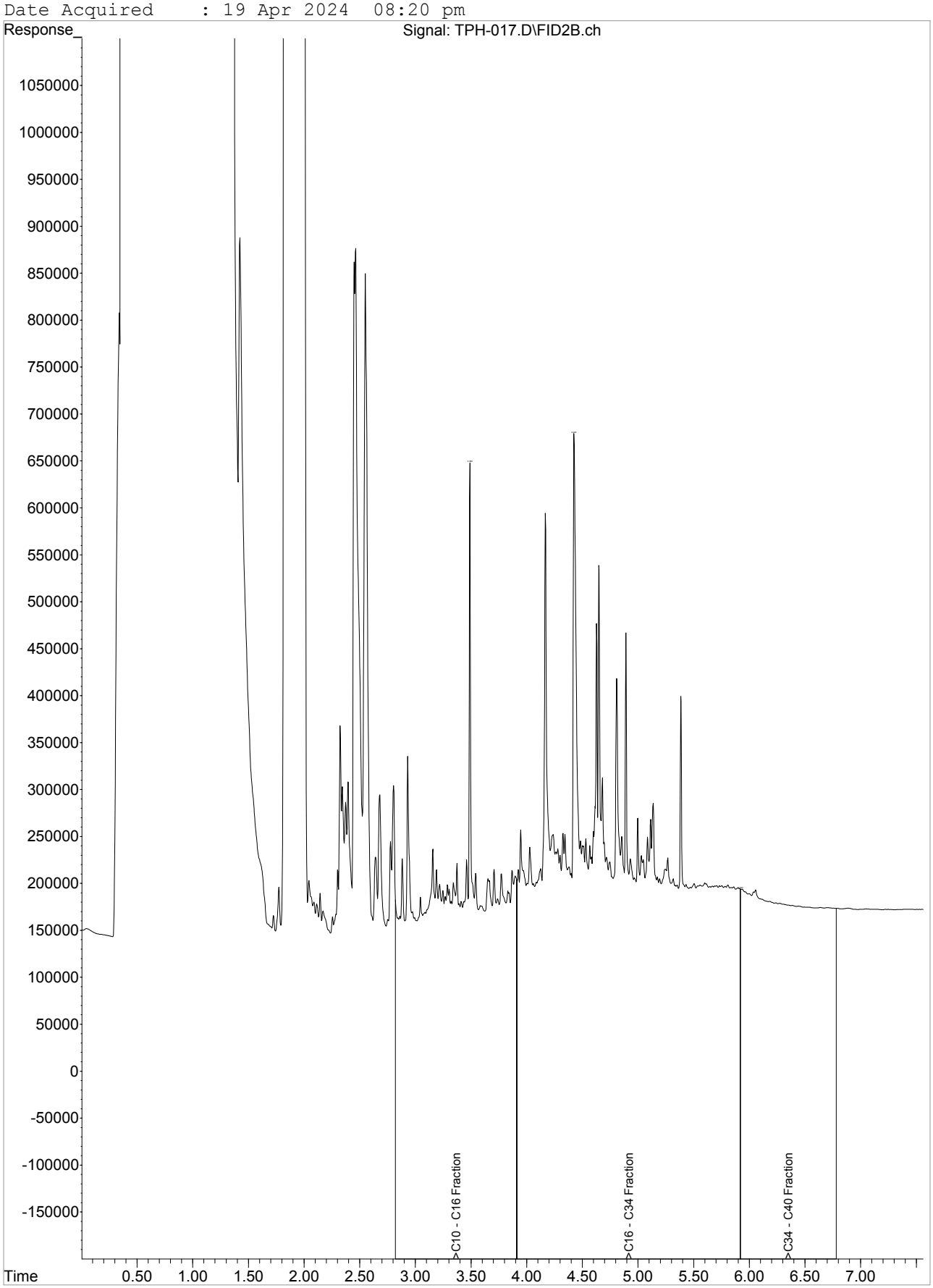
Fraction Scheme : NEPM
Data File : TPH-020.D
Laboratory Number: ES2412153-007
Sample ID : QC100_20240411
Date Acquired : 19 Apr 2024 08:35 pm



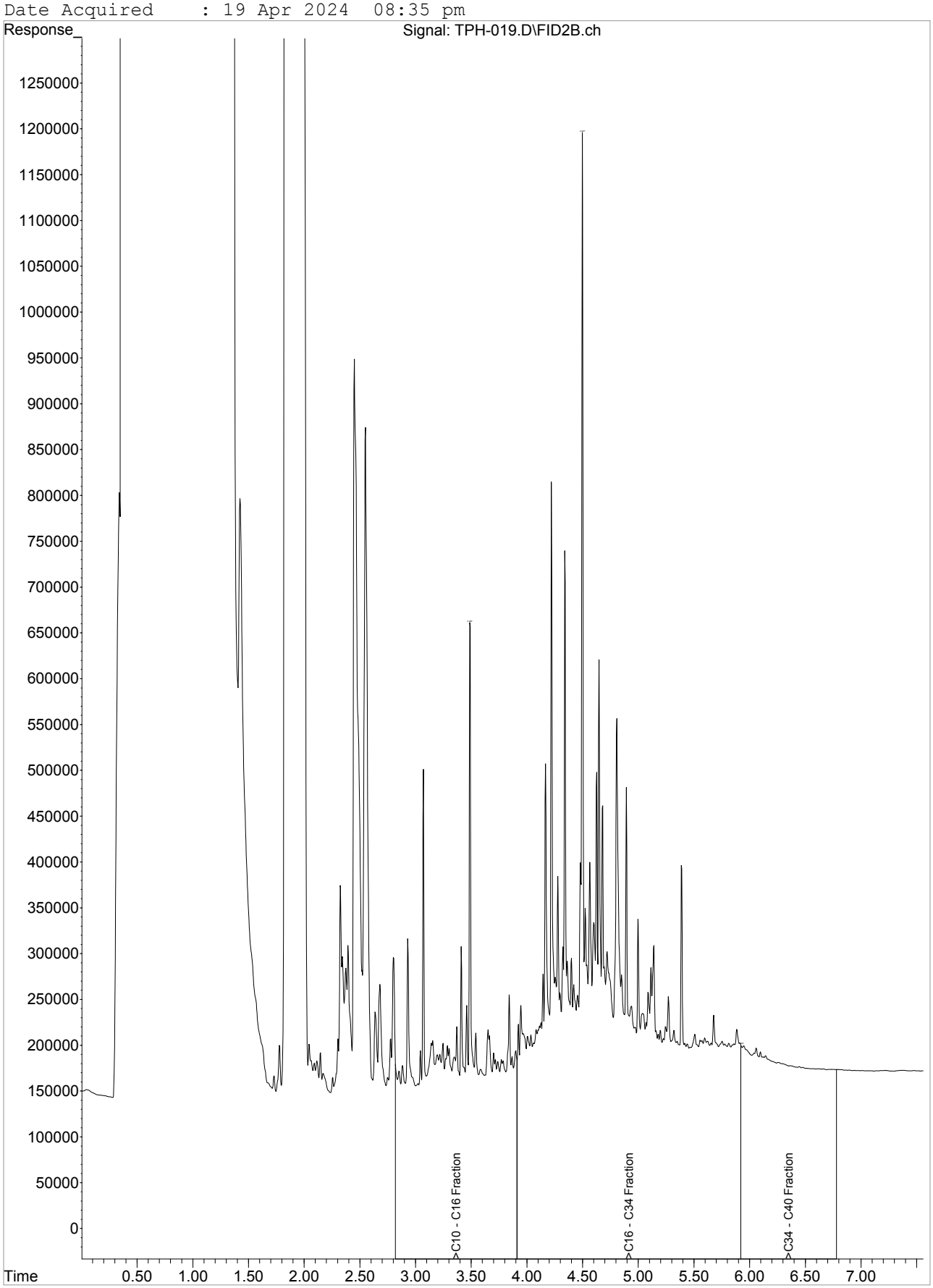
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Data File : TPH-015.D
Laboratory Number: ES2412153-002
Sample ID : BH26
Date Acquired : 19 Apr 2024 08:06 pm



Fraction Scheme : NEPM
Data File : TPH-017.D
Laboratory Number: ES2412153-004
Sample ID : BH28
Date Acquired : 19 Apr 2024 08:20 pm



Fraction Scheme : NEPM
Data File : TPH-019.D
Laboratory Number: ES2412153-006
Sample ID : R-BH37
Date Acquired : 19 Apr 2024 08:35 pm



CERTIFICATE OF ANALYSIS

Work Order	: **ES2413389**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 24-Apr-2024 15:15
Order number	: 60709736	Date Analysis Commenced	: 26-Apr-2024
C-O-C number	: ----	Issue Date	: 02-May-2024 17:01
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH26_SV1(S)	QC300_20240423	----	----	----
				Sampling date / time	22-Apr-2024 14:05	23-Apr-2024 14:05	----	----	----
Compound	CAS Number	LOR	Unit		ES2413389-001	ES2413389-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BH26_SV1(S)	QC300_20240423	----	----	----
				Sampling date / time	22-Apr-2024 14:05	23-Apr-2024 14:05	----	----	----
Compound	CAS Number	LOR	Unit		ES2413389-001	ES2413389-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH26_SV1(S)	QC300_20240423	----	----	----
			Sampling date / time	22-Apr-2024 14:05	23-Apr-2024 14:05	----	----	----
Compound	CAS Number	LOR	Unit	ES2413389-001	ES2413389-002	--------	--------	--------
				Result	Result	----	----	----
EP080: BTEXN - Continued								
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**25.2**	**26.1**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**53.1**	**41.6**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**39.9**	**34.3**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**59.9**	**96.4**	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**66.2**	**70.2**	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**65.8**	**73.7**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**96.9**	**96.7**	----	----	----
Toluene-D8	2037-26-5	2	%	**96.5**	**98.5**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**116**	**115**	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2413389**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 24-Apr-2024
Order number	: 60709736	Date Analysis Commenced	: 26-Apr-2024
C-O-C number	: ----	Issue Date	: 02-May-2024
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5752736)									
ES2413287-005	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2413502-007	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5752736)									
ES2413287-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2413502-007	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5752736)									
ES2413287-005	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2413502-007	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 5752102)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	28.9	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	54.2	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	59.3	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	68.2	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	74.2	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	61.8	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	76.6	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	64.4	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	83.7	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	81.8	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	102	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	53.1	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5752102)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	66.8	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	86.2	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	68.3	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	75.0	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	66.9	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	66.4	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	66.6	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	68.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	68.6	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	70.1	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	84.6	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	74.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	69.8	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	73.1	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	68.0	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	72.0	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5752103)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5752103) - continued								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	62.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	60.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5752736)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	88.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5752103)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	60.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	77.3	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	57.3	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5752736)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.5	75.0	127
EP080: BTEXN (QCLot: 5752736)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	104	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.3	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	113	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	111	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	75.5	124

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5752736)							
ES2413287-005	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5752736)							
ES2413287-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	106	70.0	130
EP080: BTEXN (QCLot: 5752736)							
ES2413287-005	Anonymous	EP080: Benzene	71-43-2	25 µg/L	110	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	103	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	111	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5752736) - continued							
ES2413287-005	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	116	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	109	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2413389**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 24-Apr-2024
Site	: Wyong	Issue Date	: 02-May-2024
Sampler	: Eric Serttas	No. of samples received	: 2
Order number	: 60709736	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	29-Apr-2024	✓	**01-May-2024**	05-Jun-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	30-Apr-2024	✓	**01-May-2024**	05-Jun-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	29-Apr-2024	✓	**01-May-2024**	05-Jun-2024	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	30-Apr-2024	✓	**01-May-2024**	05-Jun-2024	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	29-Apr-2024	✓	**02-May-2024**	05-Jun-2024	✓
Amber Glass Bottle - Unpreserved (EP071) QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	30-Apr-2024	✓	**02-May-2024**	05-Jun-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	06-May-2024	✓	**26-Apr-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080) QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	07-May-2024	✓	**26-Apr-2024**	07-May-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	29-Apr-2024	✓	**02-May-2024**	05-Jun-2024	✓
Amber Glass Bottle - Unpreserved (EP071)							
QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	30-Apr-2024	✓	**02-May-2024**	05-Jun-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	06-May-2024	✓	**26-Apr-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	07-May-2024	✓	**26-Apr-2024**	07-May-2024	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
BH26_SV1(S)	**22-Apr-2024**	**26-Apr-2024**	06-May-2024	✓	**26-Apr-2024**	06-May-2024	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
QC300_20240423	**23-Apr-2024**	**26-Apr-2024**	07-May-2024	✓	**26-Apr-2024**	07-May-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2413389**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: JAMES JENTZ	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ----	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 2
Order number	: ----	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 24-Apr-2024 15:15	Issue Date	: 26-Apr-2024
Client Requested Due Date	: 02-May-2024	Scheduled Reporting Date	: **02-May-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 9.2, 7.0, 8.1'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-24 TRH/BTEXN/PAH/Phenols
ES2413389-001	22-Apr-2024 14:05	BH26_SV1(S)	✓
ES2413389-002	23-Apr-2024 14:05	QC300_20240423	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No (N/A)
SAMPLE TEMPERATURE
CHILLED: (Yes) 9.2, 7.0, No 8.1

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		TRH / BTEXN	PHENOLS / PAH	HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles			
1	BH26_SV1(5)	W	22/4/24	2:05	V,AG	2,1	X	X	
2	QC300_20240423	W	23/4	PM	V,AG	2,1	X	X	

Environmental Division
Sydney
Work Order Reference
ES2413389

Telephone +61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 24/4/24	Name: Tom	Date: 24/4/24	Name: WOOS	Date: 24/4/24	Con' Note No:
Of:	Time: 12:45	Of: ALS	Time: 3:15pm	Of: AQ	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

CERTIFICATE OF ANALYSIS

Work Order	: **ES2413882**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024 19:30
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 02-May-2024
C-O-C number	: ----	Issue Date	: 07-May-2024 17:45
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- This is a rebatch of WO ES2409702.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA56_0.3-0.4	HA57_0.3-0.4	----	----	----
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2413882-001	ES2413882-002	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**9.8**	**15.5**	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		**7**	**3**	----	----	----
Copper	7440-50-8	5	mg/kg		**10**	<5	----	----	----
Lead	7439-92-1	5	mg/kg		**28**	**9**	----	----	----
Nickel	7440-02-0	2	mg/kg		**6**	<2	----	----	----
Zinc	7440-66-6	5	mg/kg		**350**	**316**	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**2.7**	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		**0.8**	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**5.4**	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**4.6**	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**1.8**	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**1.9**	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.6**	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**0.7**	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.8**	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.5**	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA56_0.3-0.4	HA57_0.3-0.4	----	----	----
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2413882-001	ES2413882-002	--------	--------	--------
					Result	Result	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.6**	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**22.4**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**2.3**	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**2.5**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**2.8**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA56_0.3-0.4	HA57_0.3-0.4	----	----	----
				Sampling date / time	18-Mar-2024 00:00	18-Mar-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2413882-001	ES2413882-002	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	**----**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg		<1	<1	**----**	**----**	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**82.2**	**94.2**	**----**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**91.2**	**93.6**	**----**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**70.6**	**67.4**	**----**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**91.7**	**94.2**	**----**	**----**	**----**
Anthracene-d10	1719-06-8	0.5	%		**106**	**102**	**----**	**----**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**101**	**101**	**----**	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**98.0**	**107**	**----**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%		**88.7**	**94.9**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**88.4**	**90.7**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

QUALITY CONTROL REPORT

Work Order	: **ES2413882**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 02-May-2024
C-O-C number	: ----	Issue Date	: 07-May-2024
Sampler	: Eric Serttas		
Site	: Wyong		
Quote number	: EN/004/23		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 5768776)									
ES2413932-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	14	31.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	17	9	62.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	17	34	67.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	74	87	17.0	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	79	90	12.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	461	382	18.9	0% - 20%
EB2413917-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	19	37.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	31.3	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	87	103	16.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	10	8	23.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	53	78	38.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5768780)									
EN2403739-001	Anonymous	EA055: Moisture Content	----	0.1	%	1.7	1.7	0.0	0% - 50%
ES2414279-001	Anonymous	EA055: Moisture Content	----	0.1	%	7.2	6.8	5.2	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5768777)									
EB2413917-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5761545)									
ES2413791-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5761545) - continued									
ES2413791-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.8	0.6	18.8	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.4	1.1	24.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5761544)									
ES2413791-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	460	610	27.6	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	620	810	26.5	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5762367)									
EB2413917-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5761544)									
ES2413791-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	830	1060	24.3	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	640	870	31.3	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5762367)									
EB2413917-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5762367)									
EB2413917-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 5762367) - continued									
EB2413917-001	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5768776)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	91.8	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	84.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	97.2	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	97.6	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	87.6	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	84.0	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	80.9	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5768777)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	74.7	70.0	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5761545)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	93.6	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.8	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.4	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	91.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.1	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.9	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.5	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.3	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	94.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.4	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	70.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	70.8	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	67.9	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5761544)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	84.5	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	90.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.2	71.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5762367)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.9	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5761544)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	96.9	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.6	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	96.6	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5762367)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.1	72.4	133
EP080: BTEXN (QCLot: 5762367)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	100	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.7	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.3	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	87.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.5	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	78.8	122

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5768776)							
EB2413917-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.4	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	106	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	93.4	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5768777)							
EB2413917-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.7	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5761545)							
ES2413791-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	92.5	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5761544)							
ES2413791-002	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	79.2	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	70.4	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	82.0	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5762367)							
EB2413917-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.1	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5761544)							
ES2413791-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	81.1	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	77.6	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	70.6	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5762367)							
EB2413917-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.6	61.1	142
EP080: BTEXN (QCLot: 5762367)							
EB2413917-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.2	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	81.1	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.6	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	82.0	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.9	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	97.8	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2413882**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Site	: Wyong	Issue Date	: 07-May-2024
Sampler	: Eric Serttas	No. of samples received	: 2
Order number	: 60709736 - CDRL 1100	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	----	----	----	04-May-2024	01-Apr-2024	**33**
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	04-May-2024	15-Apr-2024	**19**	07-May-2024	15-Apr-2024	**22**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	03-May-2024	01-Apr-2024	**32**	----	----	----
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	02-May-2024	01-Apr-2024	**31**	02-May-2024	01-Apr-2024	**31**
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	03-May-2024	01-Apr-2024	**32**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	02-May-2024	01-Apr-2024	**31**	02-May-2024	01-Apr-2024	**31**
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	03-May-2024	01-Apr-2024	**32**	----	----	----
EP080: BTEXN							
Soil Glass Jar - Unpreserved							
HA56_0.3-0.4,	HA57_0.3-0.4	02-May-2024	01-Apr-2024	**31**	02-May-2024	01-Apr-2024	**31**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**----**	----	----	**04-May-2024**	01-Apr-2024	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**04-May-2024**	14-Sep-2024	✓	**06-May-2024**	14-Sep-2024	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**04-May-2024**	15-Apr-2024	×	**07-May-2024**	15-Apr-2024	×
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**03-May-2024**	01-Apr-2024	×	**05-May-2024**	12-Jun-2024	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**02-May-2024**	01-Apr-2024	×	**02-May-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP071)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**03-May-2024**	01-Apr-2024	×	**06-May-2024**	12-Jun-2024	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**02-May-2024**	01-Apr-2024	×	**02-May-2024**	01-Apr-2024	×
Soil Glass Jar - Unpreserved (EP071)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**03-May-2024**	01-Apr-2024	×	**06-May-2024**	12-Jun-2024	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
HA56_0.3-0.4,	HA57_0.3-0.4	**18-Mar-2024**	**02-May-2024**	01-Apr-2024	×	**02-May-2024**	01-Apr-2024	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2413882**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 3
Order number	: 60709736 - CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Wyong		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 20-Mar-2024 19:30	Issue Date	: 30-Apr-2024
Client Requested Due Date	: 07-May-2024	Scheduled Reporting Date	: **07-May-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 17.4'C
Receipt Detail	: RE-BATCH	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- This is a rebatch of WO ES2409702.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2413882-001	18-Mar-2024 00:00	HA56_0.3-0.4	✓	✓
ES2413882-002	18-Mar-2024 00:00	HA57_0.3-0.4	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received		Instructions Received	
				Date	Evaluation	Date	Evaluation
EA055: Moisture Content							
HA56_0.3-0.4	Soil Glass Jar - Unpreserved	----	01-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×
HA57_0.3-0.4	Soil Glass Jar - Unpreserved	----	01-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×
EG035T: Total Mercury by FIMS							
HA56_0.3-0.4	Soil Glass Jar - Unpreserved	15-Apr-2024	15-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×
HA57_0.3-0.4	Soil Glass Jar - Unpreserved	15-Apr-2024	15-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×
EP071: TRH - Semivolatile Fraction							
HA56_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	11-May-2024	20-Mar-2024	✓	30-Apr-2024	×
HA57_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	11-May-2024	20-Mar-2024	✓	30-Apr-2024	×
EP075(SIM): PAH/Phenols (SIM)							
HA56_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	11-May-2024	20-Mar-2024	✓	30-Apr-2024	×
HA57_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	11-May-2024	20-Mar-2024	✓	30-Apr-2024	×
EP080: TRH Volatiles/BTEX							
HA56_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	01-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×
HA57_0.3-0.4	Soil Glass Jar - Unpreserved	01-Apr-2024	01-Apr-2024	20-Mar-2024	✓	30-Apr-2024	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- Chromatogram (CHROM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- Chromatogram (CHROM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

Fadi Soro

FADI
30/4/24
12pm

From: Loren Schiavon
Sent: Tuesday, 30 April 2024 11:53 AM
To: rebatches.sydney
Subject: FW: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2409702 | Your Reference: 60709736 - CDRL 1100

Hi Team,

Can I get you to arrange this re-batch request for me? Thee samples were previously on hold.

Environmental Division
Sydney
Work Order Reference
ES2413882

Telephone : +61-2-8784 8555

Workorder ES2409702 Released | Check Out for Amendment

AECOMAU (C0, 2/04/2024) 60709736 - CDRL 1100 Client Manager: Loren Schiavon

Samples | Splits | Extra Sample Info | Extra Workorder Info | Bottle Review | Miscellaneous Charges | Due Dates

	Sample	Sub-Matrix	Status	Date	Highly Impacted	Name	Descripti
>	010	SOIL	Logged	18/03/2024	☐	HA56_0.3-0.4	
	012	SOIL	Logged	18/03/2024	☐	HA57_0.3-0.4	

Sydney samples are in trays: SV104, LC113, M8A, v164B, S382, S383 EN

- ES2409702-010, HA56_0.3-0.4: 8 metals, PAHs, TRHs
- ES2409702-012, HA57_0.3-0.4: 8 metals, PAHs, TRHs

Analysis on standard TAT.
Thanks.

Kind regards,

right solutions.
right partner.

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office



EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia - Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Tuesday, April 30, 2024 11:06 AM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; McGrath, Kate <Kate.McGrath@aecom.com>
Subject: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2409702 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please proceed with the following analysis on standard TAT;

- ES2409702-010, HA56_0.3-0.4: 8 metals, PAHs, TRHs
- ES2409702-012, HA57_0.3-0.4: 8 metals, PAHs, TRHs

Thank you,

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

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From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, April 2, 2024 4:50 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: RESULTS & EDD & INVOICE for ALS Workorder : ES2409702 | Your Reference: 60709736 - CDRL 1100

Deliverables for ALS Workorder ES2409702

Project: 60709736 - CDRL 1100

Dear Eric Serttas,

Please find enclosed the following deliverables for **ES2409702**:

- ES2409702_0_COA.pdf
- 60709736 - CDRL 1100.ESDAT_ES2409702_0.Chemistry2e.CSV
- 60709736 - CDRL 1100.ESDAT_ES2409702_0.Header.XML
- 60709736 - CDRL 1100.ESDAT_ES2409702_0.Sample2e.CSV
- ES2409702_0_QC.pdf
- ES2409702_0_QCI.pdf
- 1151895228_INV.pdf
- ES2409702-Leg_20240402160617.pdf
- ES2409702-NEP_20240402160617.pdf
- ES2409702_COC.pdf

Report Recipients

- Eric Serttas
  - ES2409702_0_COA.pdf (Email)
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Chemistry2e.CSV
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Header.XML
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Sample2e.CSV
  - ES2409702_0_QC.pdf (Email)
  - ES2409702_0_QCI.pdf (Email)
  - 1151895228_INV.pdf (Email)
  - ES2409702-Leg_20240402160617.pdf (Email)
  - ES2409702-NEP_20240402160617.pdf (Email)
  - ES2409702_COC.pdf (Email)
- ACCOUNTS PAYABLE
  - 1151895228_INV.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2409702_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
- KATE McGRATH
  - ES2409702_0_COA.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Chemistry2e.CSV
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Header.XML
  - 60709736 - CDRL 1100.ESDAT_ES2409702_0.Sample2e.CSV
  - ES2409702_0_QC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2409702_0_QCI.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2409702_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email, Email)

CERTIFICATE OF ANALYSIS

Work Order	: **ES2414454**	Page	: 1 of 10
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024 19:29
Order number	: 60709736	Date Analysis Commenced	: 22-May-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024 10:04
Sampler	: AECOM Geotech Team		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Amendment (04/09/2024): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Fahim Rashid on 29/08/2024, for samples 004-007, 009, 012, 014. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: DI WATER LEACHATE (Matrix: WATER)				Sample ID	R-CO01A_1.2-1.3	----	----	----	----
				Sampling date / time	19-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2414454-014	--------	--------	--------	--------
					Result	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS									
Zinc	7440-66-6	0.005	mg/L		**1.97**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-BH09_0.6-0.7	BH42_0.5-0.6	BH04A_0.4-0.5	BH01A/GW01A_1.1-1.2	BH02A_1.3-1.4
				Sampling date / time	04-Feb-2024 00:00	11-Mar-2024 00:00	08-Mar-2024 00:00	27-Mar-2024 00:00	03-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2414454-001	ES2414454-002	ES2414454-003	ES2414454-004	ES2414454-005
					Result	Result	Result	Result	Result
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**5.6**	**8.2**	**7.7**	**8.4**	**8.7**
After HCl pH	----	0.1	pH Unit		**1.5**	**1.6**	**1.5**	**1.5**	**1.6**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit		**4.9**	**5.0**	**4.9**	**5.0**	**5.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	R-CO01A_0.2-0.3	ACM-CO07_0.325-0.5	BH32_0.015-0.15	R_BH08A_0.0-0.1	BH04A_0.4-0.5
				Sampling date / time	19-Mar-2024 00:00	08-Apr-2024 00:00	19-Mar-2024 00:00	20-Mar-2024 00:00	08-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2414454-006	ES2414454-007	ES2414454-008	ES2414454-009	ES2414454-010
					Result	Result	Result	Result	Result
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**8.9**	**9.0**	**9.7**	**6.4**	**7.9**
After HCl pH	----	0.1	pH Unit		**1.6**	**1.6**	**1.8**	**1.5**	**1.4**
Extraction Fluid Number	----	1	-		**1**	**1**	**1**	**1**	**1**
Final pH	----	0.1	pH Unit		**5.0**	**4.8**	**5.1**	**4.8**	**4.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	R_TP12_0.1-0.2	BH35/GW35_0.3-0.4	QC100_20240324	R-CO01A_1.2-1.3	----
			Sampling date / time	03-Apr-2024 00:00	20-Mar-2024 00:00	24-Mar-2024 00:00	19-Mar-2024 00:00	----
Compound	CAS Number	LOR	Unit	ES2414454-011	ES2414454-012	ES2414454-013	ES2414454-014	--------
				Result	Result	Result	Result	----
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)								
Initial pH	----	0.1	pH Unit	**8.8**	**7.3**	**6.8**	**----**	**----**
After HCl pH	----	0.1	pH Unit	**1.5**	**1.5**	**1.5**	**----**	**----**
Extraction Fluid Number	----	1	-	**1**	**1**	**1**	**----**	**----**
Final pH	----	0.1	pH Unit	**4.9**	**4.8**	**4.8**	**----**	**----**
EN60-DI: Bottle Leaching Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)								
Final pH	----	0.1	pH Unit	**----**	**----**	**----**	**7.0**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	R-BH09_0.6-0.7	BH42_0.5-0.6	BH04A_0.4-0.5	BH01A/GW01A_1.1-1.2	BH02A_1.3-1.4
				Sampling date / time	04-Feb-2024 00:00	11-Mar-2024 00:00	08-Mar-2024 00:00	27-Mar-2024 00:00	03-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2414454-001	ES2414454-002	ES2414454-003	ES2414454-004	ES2414454-005
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		----	----	----	**0.4**	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	----	<0.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**31.9**	**30.9**	**30.4**	----	**32.1**
2-Chlorophenol-D4	93951-73-6	1.0	%		**59.4**	**54.1**	**61.3**	----	**62.8**
2.4.6-Tribromophenol	118-79-6	1.0	%		**62.1**	**59.6**	**71.3**	----	**71.6**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**63.9**	**63.3**	**68.8**	----	**74.9**
Anthracene-d10	1719-06-8	1.0	%		**79.4**	**69.6**	**91.6**	----	**82.7**
4-Terphenyl-d14	1718-51-0	1.0	%		**75.0**	**74.6**	**90.2**	----	**87.4**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	R-CO01A_0.2-0.3	ACM-CO07_0.325-0.5	BH32_0.015-0.15	R_BH08A_0.0-0.1	BH04A_0.4-0.5
				Sampling date / time	19-Mar-2024 00:00	08-Apr-2024 00:00	19-Mar-2024 00:00	20-Mar-2024 00:00	08-Mar-2024 00:00
Compound	CAS Number	LOR	Unit		ES2414454-006	ES2414454-007	ES2414454-008	ES2414454-009	ES2414454-010
					Result	Result	Result	Result	Result
EG005(ED093)C: Leachable Metals by ICPAES									
Lead	7439-92-1	0.1	mg/L		<0.1	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		----	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	----	----	<0.5	<0.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	----	----	**22.0**	**25.2**
2-Chlorophenol-D4	93951-73-6	1.0	%		----	----	----	**43.8**	**49.4**
2.4.6-Tribromophenol	118-79-6	1.0	%		----	----	----	**56.1**	**68.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	----	----	**56.7**	**73.2**
Anthracene-d10	1719-06-8	1.0	%		----	----	----	**63.4**	**72.7**
4-Terphenyl-d14	1718-51-0	1.0	%		----	----	----	**70.8**	**75.8**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	R_TP12_0.1-0.2	BH35/GW35_0.3-0.4	QC100_20240324	----	----
				Sampling date / time	03-Apr-2024 00:00	20-Mar-2024 00:00	24-Mar-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2414454-011	ES2414454-012	ES2414454-013	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	**----**	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**29.3**	**29.7**	**28.6**	**----**	**----**
2-Chlorophenol-D4	93951-73-6	1.0	%		**58.2**	**59.1**	**55.8**	**----**	**----**
2.4.6-Tribromophenol	118-79-6	1.0	%		**68.8**	**72.9**	**69.0**	**----**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**69.4**	**71.1**	**68.4**	**----**	**----**
Anthracene-d10	1719-06-8	1.0	%		**83.2**	**88.1**	**74.6**	**----**	**----**
4-Terphenyl-d14	1718-51-0	1.0	%		**80.2**	**87.1**	**80.7**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

QUALITY CONTROL REPORT

Work Order	: **ES2414454**	Page	: 1 of 3
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024
Order number	: 60709736	Date Analysis Commenced	: 22-May-2024
C-O-C number	: ----	Issue Date	: 04-Sep-2024
Sampler	: AECOM Geotech Team		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)C: Leachable Metals by ICPAES (QC Lot: 5811748)									
ES2414454-004	BH01A/GW01A_1.1-1.2	EG005C: Lead	7439-92-1	0.1	mg/L	0.4	0.4	0.0	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2416582-002	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 5820320)									
ES2414454-014	R-CO01A_1.2-1.3	EG020A-W: Zinc	7440-66-6	0.005	mg/L	1.97	2.38	18.6	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel) (QCLot: 5806116)								
EN33a-G: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: Final pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel) (QCLot: 5806117)								
EN33a-G: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5811748)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	109	80.0	118
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	104	83.0	115
EG020W: Water Leachable Metals by ICP-MS (QCLot: 5820320)								
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	80.0	114
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5812016)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	82.7	63.3	117

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)C: Leachable Metals by ICPAES (QCLot: 5811748)							
ES2414454-006	R-CO01A_0.2-0.3	EG005C: Lead	7439-92-1	1 mg/L	121	70.0	130
		EG005C: Nickel	7440-02-0	1 mg/L	118	70.0	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 5820320)							
ES2414454-014	R-CO01A_1.2-1.3	EG020A-W: Zinc	7440-66-6	1 mg/L	90.9	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2414454**	Page	: 1 of 5
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 400	Date Samples Received	: 04-Mar-2024
Site	: ----	Issue Date	: 04-Sep-2024
Sampler	: AECOM Geotech Team	No. of samples received	: 14
Order number	: 60709736	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH02A_1.3-1.4, R_TP12_0.1-0.2	**03-Apr-2024**	**22-May-2024**	30-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
R-BH09_0.6-0.7	**04-Feb-2024**	**22-May-2024**	02-Aug-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
ACM-CO07_0.325-0.5	**08-Apr-2024**	**22-May-2024**	05-Oct-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH04A_0.4-0.5, BH04A_0.4-0.5	**08-Mar-2024**	**22-May-2024**	04-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH42_0.5-0.6	**11-Mar-2024**	**22-May-2024**	07-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
R-CO01A_0.2-0.3, BH32_0.015-0.15	**19-Mar-2024**	**22-May-2024**	15-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
R_BH08A_0.0-0.1, BH35/GW35_0.3-0.4	**20-Mar-2024**	**22-May-2024**	16-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
QC100_20240324	**24-Mar-2024**	**22-May-2024**	20-Sep-2024	✓	**----**	----	----
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN33a-G)							
BH01A/GW01A_1.1-1.2	**27-Mar-2024**	**22-May-2024**	23-Sep-2024	✓	**----**	----	----
EN60-DI: Bottle Leaching Procedure - Inorganics/Non-Volatile Organics (Glass Vessel)							
Non-Volatile Leach: 180 day HT (e.g. PFAS, metals ex.Hg) (EN60-DIa-G)							
R-CO01A_1.2-1.3	**19-Mar-2024**	**22-May-2024**	15-Sep-2024	✓	**----**	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
BH01A/GW01A_1.1-1.2, R-CO01A_0.2-0.3, ACM-CO07_0.325-0.5, BH32_0.015-0.15	**22-May-2024**	**24-May-2024**	18-Nov-2024	✓	**24-May-2024**	18-Nov-2024	✓
EG020W: Water Leachable Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-W)							
R-CO01A_1.2-1.3	**22-May-2024**	**28-May-2024**	18-Nov-2024	✓	**28-May-2024**	18-Nov-2024	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
R-BH09_0.6-0.7, BH42_0.5-0.6, BH04A_0.4-0.5, BH02A_1.3-1.4, R_BH08A_0.0-0.1, BH04A_0.4-0.5, R_TP12_0.1-0.2, BH35/GW35_0.3-0.4, QC100_20240324	**22-May-2024**	**24-May-2024**	29-May-2024	✓	**24-May-2024**	03-Jul-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB)							
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	2	16	**12.50**	**9.09**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Leachable Metals by ICPAES	EG005C	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM Schedule B(3).
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	SOIL	In house: Referenced to APHA 3125; USEPA SW846 - 6020, AS 4439.3, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals in DI Water Leachate	EN25W	SOIL	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Deionised Water Leach - Glass Leaching Vessel	EN60-Dla-G	SOIL	In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2414454**		
Amendment	: **1**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 400	Page	: 1 of 3
Order number	: 60709736	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: AECOM Geotech Team		

Dates

Date Samples Received	: 04-Mar-2024 19:29	Issue Date	: 04-Sep-2024
Client Requested Due Date	: 28-May-2024	Scheduled Reporting Date	: **28-May-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 12.8'C
Receipt Detail	: Re-batch of ES2407037, ES_8075, ES_8158, ES_10231, ES_10959, ES_9727, ES_11748, ES_9727, ES_9869, ES_9354, ES_11530, ES_9869, ES_9806 and ES_9727	No. of samples received / analysed	: 14 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Re-batch of ES2407037, ES_8075, ES_8158, ES_10231, ES_10959, ES_9727, ES_11748, ES_9727, ES_9869, ES_9354, ES_11530, ES_9869, ES_9806 and ES_9727
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EG005C Leachable Metals by ICPAES	SOIL - EG020W Water Leachable Metals by ICPMS	SOIL - EN33a-G TCLP Leachate - Glass Leaching Vessel	SOIL - EN60-DIa-G Deionised Water Leach - Glass Leaching Vessel	SOIL - EP075 SIM PAH only SIM - PAH only
ES2414454-001	04-Feb-2024 00:00	R-BH09_0.6-0.7			✓		✓
ES2414454-002	11-Mar-2024 00:00	BH42_0.5-0.6			✓		✓
ES2414454-003	08-Mar-2024 00:00	BH04A_0.4-0.5			✓		✓
ES2414454-004	27-Mar-2024 00:00	BH01A/GW01A_1.1-1.2	✓		✓		
ES2414454-005	03-Apr-2024 00:00	BH02A_1.3-1.4			✓		✓
ES2414454-006	19-Mar-2024 00:00	R-CO01A_0.2-0.3	✓		✓		
ES2414454-007	08-Apr-2024 00:00	ACM-CO07_0.325-0.5	✓		✓		
ES2414454-008	19-Mar-2024 00:00	BH32_0.015-0.15	✓		✓		
ES2414454-009	20-Mar-2024 00:00	R_BH08A_0.0-0.1			✓		✓
ES2414454-010	08-Mar-2024 00:00	BH04A_0.4-0.5			✓		✓
ES2414454-011	03-Apr-2024 00:00	R_TP12_0.1-0.2			✓		✓
ES2414454-012	20-Mar-2024 00:00	BH35/GW35_0.3-0.4			✓		✓
ES2414454-013	24-Mar-2024 00:00	QC100_20240324			✓		✓
ES2414454-014	19-Mar-2024 00:00	R-CO01A_1.2-1.3		✓		✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	eric.serttas@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ENMRG (ENMRG)	Email	kate.mcgrath@aecom.com
- EDI Format - EQUIS V5 AECOM (EQUIS_V5_AECOM)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

Fadi Soro

Fadi 21/5/24 11.45a

From: Sepan Mahamad
Sent: Thursday, 2 May 2024 11:43 AM
To: rebatches.sydney
Cc: Loren Schiavon
Subject: RE: [EXTERNAL] - Additional Analysis Requests (AECOM Ref: 60709736 / CDRL 1100, Wyong)

Hi Team,

Please use Di Water for ASLP.

Kind regards,

right solutions. right partner.

Sep Mahamad
Client Services Coordinator, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8504
Sepan.Mahamad@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

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Environmental Division
Sydney
Work Order Reference
ES2414454

Telephone : +61-2-8784 8555



EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia - Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Sepan Mahamad
Sent: Wednesday, May 1, 2024 7:02 PM
To: rebatches.sydney <rebatches.sydney@ALSGlobal.com>

ES2414454

Cc: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: RE: [EXTERNAL] - Additional Analysis Requests (AECOM Ref: 60709736 / CDRL 1100, Wyong)

I'm waiting for the client to confirm the leaching fluid for ASLP - I'll send another email once confirmed.

Kind regards,

right solutions.
right partner.

Sep Mahamad
Client Services Coordinator, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8504
Sepan.Mahamad@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com



EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia - Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Sepan Mahamad
Sent: Wednesday, May 1, 2024 6:59 PM
To: rebatches.sydney <rebatches.sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>
Subject: FW: [EXTERNAL] - Additional Analysis Requests (AECOM Ref: 60709736 / CDRL 1100, Wyong)

Hi Team,

Could you please organise this rebatch?

Can you please conduct the following analysis on standard TAT;

	Lab Ref	Sample ID	TCLP	ASLP	Date
1	ES2407037-008	R-BH09_0.6-0.7	BaP	-	4.2.2024
2	ES2408075-006	BH42_0.5-0.6	BaP	-	11.3.2024

					Date:
3	ES2408158-010	BH04A_0.4-0.5	BaP	-	8.3.2024
4	ES2410231-002	BH01_1.1-1.2	Lead	-	27.3.2024
5	ES2410959-003	BH02_1.3-1.4	BaP	-	3.4.2024
6	ES2409727-006	R-CO01(A) 0.2-0.3	Lead	-	19.3.2024
7	ES2411748-015	ACM_CO07_0.33-0.5	Nickel	-	8.4.2024
8	ES2409727-020	BH32_0.015-0.15	Nickel	-	19.3.2024
	ES2409727-006	R-CO01(A) 0.2-0.3	Lead	-	
9	ES2409869-022	R_BH08_0.0-0.1	BaP	-	20.3.2024
10	ES2409354-001	BH04A_0.4-0.5	BaP	-	8.3.2024
	ES2407037-008	R-BH09_0.6-0.7	BaP	-	
11	ES2411530-014	R_TP12_0.1-0.2	BaP	-	3.4.2024
12	ES2409869-026	BH35_0.3-0.4	BaP	-	20.3.2024
13	ES2409806-008	QC100_20240324	BaP	-	24.3.2024
	ES2408075-006	BH42_0.5-0.6	BaP	-	
	ES2410959-003	BH02_1.3-1.4	BaP	-	
14	ES2409727-008	R-CO01(A)_1.2-1.3	-	Zinc(ASLP)	19.3.2024

Also, can you please request Eurofins to conduct the analysis below on standard TAT;

Lab Ref	Sample ID	TCLP	ASLP
1084238	QC200_20240322	BaP, Lead	Zinc, Lead, BaP

ES2407037 Sydney samples are in trays: EN S-040 S-041 V-060c M-082a SV-022

ES2408075 Sydney samples are in trays: S-195 S-197 SV-053 M-133a V-102a

ES2408158 Sydney samples are in trays: newcastle, brisbane, S-195, SV-053, M-131c, V-102a

ES2410231 Sydney samples are in trays: S-485 S-486 SV-122 M-038a V-015c

ES2410959 Sydney samples are in trays: V39C SV142 M63A S583-S584 ENVIROLAB

ES2409727 Sydney samples are in trays: SV105, M10a, v164c, S384, S385 s386 , S387 EUROFINS ENVIROLAB

ES2411748 Sydney samples are in trays: S-682 S-683 S-684 SV-166 V-066c M-105c LC-175

ES2409869

Sydney samples are in trays: S-402 S-403 S-404 S-405 S-406 S-407 S-408 S-410 S-409 SV-108 V-176b M-016a

ES2409354 Sydney samples are in trays: S-328 SV-089 M-186c V-135b

ES2411530 Sydney samples are in trays: v64a, s670, s671, sv161, lc173, m97c, EN eurofins

ES2409806 Sydney samples are in trays: S-391/392, SV-106, M-13/B, LC-118, V-177/A, EN (ASBESTOS)

ES2408075 Sydney samples are in trays: S-195 S-197 SV-053 M-133a V-102a

ES2410959 Sydney samples are in trays: V39C SV142 M63A S583-S584 ENVIROLAB

Kind regards,

right solutions. right partner.

Sep Mahamad
Client Services Coordinator, Environmental
Sydney, NSW

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alsglobal.com



EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia - Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Wednesday, May 1, 2024 2:48 PM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; McGrath, Kate <Kate.McGrath@aecom.com>; Rashid, Fahim <Fahim.Rashid@aecom.com>
Subject: [EXTERNAL] - Additional Analysis Requests (AECOM Ref: 60709736 / CDRL 1100, Wyong)

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please conduct the following analysis on standard TAT;

Lab Ref	Sample ID	TCLP	ASLP
ES2407037	R-BH09_0.6-0.7	BaP	-
ES2408075	BH42_0.5-0.6	BaP	-
ES2408158	BH04A_0.4-0.5	BaP	-
ES2410231	BH01_1.1-1.2	Lead	-
ES2410959	BH02_1.3-1.4	BaP	-
ES2409727	R-CO01(A) 0.2-0.3	Lead	-
ES2411748	ACM_CO07_0.33-0.5	Nickel	-
ES2409727	BH32_0.015-0.15	Nickel	-
ES2409727	R-CO01(A) 0.2-0.3	Lead	-
ES2409869	R_BH08_0.0-0.1	BaP	-
ES2409354	BH04A_0.4-0.5	BaP	-
ES2407037	R-BH09_0.6-0.7	BaP	-
ES2411530	R_TP12_0.1-0.2	BaP	-
ES2409869	BH35_0.3-0.4	BaP	-
ES2409806	QC100_20240324	BaP	-
ES2408075	BH42_0.5-0.6	BaP	-
ES2410959	BH02_1.3-1.4	BaP	-
ES2409727	R-CO01(A)_1.2-1.3	-	Zinc(ASLP)

Also, can you please request Eurofins to conduct the analysis below on standard TAT;

Lab Ref	Sample ID	TCLP	ASLP
1084238	QC200_20240322	BaP, Lead	Zinc, Lead, BaP

Thank you,

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

Click here to connect with me on LinkedIn

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CERTIFICATE OF ANALYSIS

Work Order	: **ES2415351**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024 19:30
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 14-May-2024
C-O-C number	: ----	Issue Date	: 19-May-2024 07:29
Sampler	: Eric Serttas		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- This is a rebatch of WO ES2413882

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	HA56_0.3-0.4	----	----	----	----
				Sampling date / time	18-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2415351-001	--------	--------	--------	--------
					Result	----	----	----	----
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)									
Initial pH	----	0.1	pH Unit		**6.5**	**----**	**----**	**----**	**----**
After HCl pH	----	0.1	pH Unit		**1.4**	**----**	**----**	**----**	**----**
Extraction Fluid Number	----	1	-		**1**	**----**	**----**	**----**	**----**
Final pH	----	0.1	pH Unit		**5.1**	**----**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Sample ID	HA56_0.3-0.4	----	----	----	----
				Sampling date / time	18-Mar-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2415351-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**29.3**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**69.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**43.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**91.6**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**92.1**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**88.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: TCLP LEACHATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112

QUALITY CONTROL REPORT

Work Order	: **ES2415351**	Page	: 1 of 3
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Order number	: 60709736 - CDRL 1100	Date Analysis Commenced	: 14-May-2024
C-O-C number	: ----	Issue Date	: 19-May-2024
Sampler	: Eric Serttas		
Site	: ----		
Quote number	: EN/004/23		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel) (QCLot: 5787523)								
EN33a-G: Initial pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: After HCl pH	----	0.1	pH Unit	1.0	----	----	----	----
EN33a-G: Final pH	----	0.1	pH Unit	1.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5790679)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	92.6	63.3	117

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2415351**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Telephone	: +61 2 8784 8555
Project	: 60709736 - CDRL 1100	Date Samples Received	: 20-Mar-2024
Site	: ----	Issue Date	: 19-May-2024
Sampler	: Eric Serttas	No. of samples received	: 1
Order number	: 60709736 - CDRL 1100	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
HA56_0.3-0.4	14-May-2024	03-Apr-2024	**41**	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Analytical Methods	Method	Count		Rate (%)		Quality Control Specification
		QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN33: TCLP Leach - Inorganics/Non-Volatile Organics (Glass Vessel)							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a-G)							
HA56_0.3-0.4	**20-Mar-2024**	**14-May-2024**	03-Apr-2024	×	**----**	----	----

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
HA56_0.3-0.4	**14-May-2024**	**15-May-2024**	21-May-2024	✓	**16-May-2024**	24-Jun-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB)							
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	1	6	16.67	9.09	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	5	0.00	5.00	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel	EN33a-G	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2415351**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Eric Serttas	Contact	: Loren Schiavon
Address	: LEVEL 21 420 GEORGE STREET SYDNEY NSW, AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: eric.serttas@aecom.com	E-mail	: Loren.Schiavon@ALSGlobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 60709736 - CDRL 1100	Page	: 1 of 2
Order number	: 60709736 - CDRL 1100	Quote number	: EP2023AECOMAU0010 (EN/004/23)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Eric Serttas		

Dates

Date Samples Received	: 20-Mar-2024 19:30	Issue Date	: 13-May-2024
Client Requested Due Date	: 20-May-2024	Scheduled Reporting Date	: **20-May-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 6.0'C
Receipt Detail	: RE-BATCH	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- This is a rebatch of WO ES2413882

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EN33a-G TCLP Leachate - Glass Leaching Vessel	SOIL - EP075 SIM PAH only SIM - PAH only
ES2415351-001	18-Mar-2024 00:00	HA56_0.3-0.4	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EN33a-G: TCLP for Non & Semivolatile Analytes - Glass Leaching Vessel							
HA56_0.3-0.4	Non-Volatile Leach: 14 day HT(ε	03-Apr-2024	----	20-Mar-2024	✓	09-May-2024	×

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	AP_CustomerService.ANZ@aecom.com
- Chain of Custody (CoC) (COC)	Email	AP_CustomerService.ANZ@aecom.com

Eric Serttas

- *AU Certificate of Analysis - NATA (COA)	Email	eric.serttas@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	eric.serttas@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	eric.serttas@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	eric.serttas@aecom.com
- A4 - AU Tax Invoice (INV)	Email	eric.serttas@aecom.com
- Chain of Custody (CoC) (COC)	Email	eric.serttas@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	eric.serttas@aecom.com
- EDI Format - XTab (XTAB)	Email	eric.serttas@aecom.com

KATE McGRATH

- *AU Certificate of Analysis - NATA (COA)	Email	kate.mcgrath@aecom.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	kate.mcgrath@aecom.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	kate.mcgrath@aecom.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	kate.mcgrath@aecom.com
- Chain of Custody (CoC) (COC)	Email	kate.mcgrath@aecom.com
- EDI Format - ESDAT (ESDAT)	Email	kate.mcgrath@aecom.com
- EDI Format - XTab (XTAB)	Email	kate.mcgrath@aecom.com

Fadi Soro

9/5/24

From: Loren Schiavon
Sent: Wednesday, 8 May 2024 6:59 PM
To: rebatches.sydney
Subject: FW: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2413882 | Your Reference: 60709736 - CDRL 1100

Categories: Rebatch

Hi Team,
Can you please arrange this rebatch request for AECOM?

Sample	Sub-Matrix	Status	Date	Highly Impacted	Name
001	SOIL	Logged	18/03/2024	☐	HA56_0.3-0.4

TCLP BaP

- Sydney samples are in trays: S-1064

Thanks!

Kind regards,

Environmental Division
Sydney
Work Order Reference
ES2415351

Telephone : +61-2-8784 8555

right solutions.
right partner.

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office



EnviroMail 145 Australia - Putting out the fire on emerging contaminants (HBCDs)
EnviroMail 146 Australia - PFAS: Internal Standards, Surrogates & Isotope Dilutions
EnviroMail 147 Australia - PFAS: Emerged or emerging?
EnviroMail 148 Australia – Interpreting TOP Assay
EnviroMail 151 Australia - Expanding the scope of PFAS analysis in soils and waters

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Wednesday, May 8, 2024 10:09 AM

To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; McGrath, Kate <Kate.McGrath@aecom.com>
Subject: [EXTERNAL] - RE: RESULTS & EDD & INVOICE for ALS Workorder : ES2413882 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please proceed with TCLP BaP analysis in sample HA56_0.3-0.4 (ES2413882-001) on standard TAT?

Thank you,

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

Click here to connect with me on LinkedIn

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Q410, QVB Post Office, Sydney 2000
T 1800 868 654
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Delivering a better world
LinkedIn | Twitter | Facebook | Instagram



From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, May 7, 2024 6:07 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: RESULTS & EDD & INVOICE for ALS Workorder : ES2413882 | Your Reference: 60709736 - CDRL 1100

Deliverables for ALS Workorder ES2413882

Project: 60709736 - CDRL 1100

Dear Eric Serttas,

Please find enclosed the following deliverables for **ES2413882**:

- ES2413882_0_COA.pdf
- 60709736 - CDRL 1100.ESDAT_ES2413882_0.Chemistry2e.CSV
- 60709736 - CDRL 1100.ESDAT_ES2413882_0.Header.XML
- 60709736 - CDRL 1100.ESDAT_ES2413882_0.Sample2e.CSV
- ES2413882_0_QC.pdf
- ES2413882_0_QCI.pdf
- 1151914959_INV.pdf
- ES2413882_0_XTAB.XLS
- ES2413882_COC.pdf

Report Recipients

- Eric Sertas
  - ES2413882_0_COA.pdf (Email)
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Chemistry2e.CSV
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Header.XML
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Sample2e.CSV
  - ES2413882_0_QC.pdf (Email)
  - ES2413882_0_QCI.pdf (Email)
  - 1151914959_INV.pdf (Email)
  - ES2413882_0_XTAB.XLS
  - ES2413882_COC.pdf (Email)
- ACCOUNTS PAYABLE
  - 1151914959_INV.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2413882_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)
- KATE McGRATH
  - ES2413882_0_COA.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Chemistry2e.CSV
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Header.XML
  - 60709736 - CDRL 1100.ESDAT_ES2413882_0.Sample2e.CSV
  - ES2413882_0_QC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2413882_0_QCI.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)
  - ES2413882_0_XTAB.XLS
  - ES2413882_COC.pdf (Email, Email, Email, Email, Email, Email, Email, Email, Email)

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 348062

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2410587**
Number of Samples	3 Coal Tar
Date samples received	04/04/2024
Date completed instructions received	04/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	11/04/2024
Date of Issue	08/04/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar				
Our Reference		348062-1	348062-2	348062-3
Your Reference	UNITS	20240326_ACM_TP15_0.0-0.01m	20240326_A_TP05_0.0-0.04m	20240326_ACM_TP01_0.0-0.05m
Type of sample		Coal Tar	Coal Tar	Coal Tar
Date prepared	-	05/04/2024	05/04/2024	05/04/2024
Date analysed	-	04/05/2024	04/05/2024	04/05/2024
Presence of Coal Tar*	-	Absent	Absent	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 348066

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2410544**
Number of Samples	3 Coal Tar
Date samples received	04/04/2024
Date completed instructions received	04/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	11/04/2024
Date of Issue	08/04/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar				
Our Reference		348066-1	348066-2	348066-3
Your Reference	UNITS	20240325_A_TP09_0.0-0.01m	20240325_ACM_TP11_0.0-0.01	20240325_ACM_L006_0.0-0.015
Type of sample		Coal Tar	Coal Tar	Coal Tar
Date prepared	-	05/04/2024	05/04/2024	05/04/2024
Date analysed	-	05/04/2024	05/04/2024	05/04/2024
Presence of Coal Tar*	-	Absent	Absent	Absent

Method ID	Methodology Summary
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Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
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LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
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Spikes for Physical and Aggregate Tests are not applicable.

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Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

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Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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CERTIFICATE OF ANALYSIS 348767-A

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2411748**
Number of Samples	Additional analysis
Date samples received	12/04/2024
Date completed instructions received	12/06/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	19/06/2024
Date of Issue	19/06/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Nancy Zhang, Laboratory Manager, Sydney
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

PAHs in Soil			
Our Reference		348767-A-1	348767-A-2
Your Reference	UNITS	ACM_TP19_0.2	R_C006_0.3
Type of sample		Soil	Soil
Date extracted	-	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024
Naphthalene	mg/kg	<0.1	6.6
Acenaphthylene	mg/kg	<0.1	30
Acenaphthene	mg/kg	<0.1	12
Fluorene	mg/kg	<0.1	31
Phenanthrene	mg/kg	0.1	380
Anthracene	mg/kg	<0.1	93
Fluoranthene	mg/kg	0.4	1,200
Pyrene	mg/kg	0.5	1,100
Benzo(a)anthracene	mg/kg	0.3	340
Chrysene	mg/kg	0.2	250
Benzo(b,j+k)fluoranthene	mg/kg	0.7	650
Benzo(a)pyrene	mg/kg	0.5	470
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	400
Dibenzo(a,h)anthracene	mg/kg	<0.1	42
Benzo(g,h,i)perylene	mg/kg	0.4	340
Total +ve PAH's	mg/kg	3.6	5,300
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	660
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.7	660
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.7	660
Surrogate p-Terphenyl-d14	%	113	115

Moisture			
Our Reference	UNITS	348767-A-1	348767-A-2
Your Reference		ACM_TP19_0.2	R_C006_0.3
Type of sample		Soil	Soil
Date prepared	-	12/06/2024	12/06/2024
Date analysed	-	13/06/2024	13/06/2024
Moisture	%	5.1	0.8

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date extracted	-			12/06/2024	[NT]	[NT]	[NT]	[NT]	12/06/2024	[NT]
Date analysed	-			13/06/2024	[NT]	[NT]	[NT]	[NT]	13/06/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	122	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	132	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	125	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	120	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	123	[NT]	[NT]	[NT]	[NT]	114	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
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Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
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Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

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CERTIFICATE OF ANALYSIS 340861

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**60709736-CDRL 400 Wyong**
Number of Samples	2 Soil
Date samples received	22/12/2023
Date completed instructions received	22/12/2023

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	08/01/2024
Date of Issue	08/01/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar			
Our Reference		340861-1	340861-2
Your Reference	UNITS	ACM-TP09_0.00-0.035	R-TP05-0-0.04
Date Sampled		13/12/2023	13/12/2023
Type of sample		Soil	Soil
Date prepared	-	27/12/2023	27/12/2023
Date analysed	-	27/12/2023	27/12/2023
Presence of Coal Tar*	-	Absent	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
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RPD	Relative Percent Difference
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Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

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CERTIFICATE OF ANALYSIS 346059

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2407462**
Number of Samples	1 Coal Tar
Date samples received	08/03/2024
Date completed instructions received	08/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	15/03/2024
Date of Issue	13/03/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		346059-1
Your Reference	UNITS	A_BH17_0.0-0.05
Date Sampled		04/03/2024
Type of sample		Coal Tar
Date prepared	-	11/03/2024
Date analysed	-	11/03/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

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Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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customerservice@envirolab.com.au
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CERTIFICATE OF ANALYSIS 346507

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2408075**
Number of Samples	1 Soil
Date samples received	14/03/2024
Date completed instructions received	14/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	21/03/2024
Date of Issue	20/03/2024

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Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		346507-1
Your Reference	UNITS	BH41
Depth		0.4-0.5
Type of sample		Soil
Date prepared	-	19/03/2024
Date analysed	-	19/03/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

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Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347486

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2409727**
Number of Samples	1 Soil
Date samples received	26/03/2024
Date completed instructions received	08/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	15/04/2024
Date of Issue	12/04/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		347486-1
Your Reference	UNITS	R_COD1(A)_0.0
Type of sample		Soil
Date prepared	-	10/04/2024
Date analysed	-	10/04/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

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Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347629

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2409761**
Number of Samples	2 Soil
Date samples received	27/03/2024
Date completed instructions received	27/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	05/04/2024
Date of Issue	05/04/2024

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Results Approved By
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar			
Our Reference		347629-1	347629-2
Your Reference	UNITS	ACM-C001_0.0-0.4	ACM-C002_0.0-0.2
Type of sample		Soil	Soil
Date prepared	-	03/04/2024	03/04/2024
Date analysed	-	03/04/2024	03/04/2024
Presence of Coal Tar*	-	Absent	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
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Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347630

Client Details

Client	Australian Laboratory Services Pty Ltd
Attention	Results Email
Address	277 Woodpark Rd, Smithfield, NSW, 2164

Sample Details

Your Reference	**ES2409815**
Number of Samples	1 Coal Tar
Date samples received	27/03/2024
Date completed instructions received	27/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

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Report Details

Date results requested by	05/04/2024
Date of Issue	05/04/2024

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Results Approved By
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

Coal Tar		
Our Reference		347630-1
Your Reference	UNITS	ACM_C004_0-0.015
Type of sample		Coal Tar
Date prepared	-	03/04/2024
Date analysed	-	03/04/2024
Presence of Coal Tar*	-	Absent

Method ID	Methodology Summary
RTA T542	Determination of Phenol in core samples as per RTA test method T542. This procedure gives and indication of whether a sample of asphalt has been made with coal tar. The coal tar method gives an approximate result with a high degree of uncertainty.

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AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1081719-S**
Project name WYONG
Project ID 60709736
Received Date Mar 26, 2024

Client Sample ID			**QC200-2024031S**
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ma0062587**
Date Sampled			**Mar 25, 2024**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	13
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	14
Copper	5	mg/kg	23
Lead	5	mg/kg	21
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	23
Sample Properties			
% Moisture	1	%	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Metals M8	Sydney	Mar 26, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Mar 26, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

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NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736

Order No.: 60709736 - CDRL 1100
Report #: 1081719
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Mar 26, 2024 12:00 AM
Due: Apr 4, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Metals M8	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200-2024031S	Mar 25, 2024		Soil	S24-Ma0062587	X	X
Test Counts						1	1

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ppm: parts per million
µg/L: micrograms per litre
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit
Colour: Pt-Co Units (CU)

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	105			80-120	Pass	
Lead	%	105			80-120	Pass	
Mercury	%	115			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	105			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N24-Ma0054989	NCP	%	108			75-125	Pass	
Cadmium	N24-Ma0054989	NCP	%	102			75-125	Pass	
Chromium	N24-Ma0054989	NCP	%	104			75-125	Pass	
Copper	N24-Ma0054989	NCP	%	106			75-125	Pass	
Lead	N24-Ma0054267	NCP	%	96			75-125	Pass	
Mercury	N24-Ma0054989	NCP	%	113			75-125	Pass	
Nickel	N24-Ma0054989	NCP	%	105			75-125	Pass	
Zinc	N24-Ma0054989	NCP	%	104			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ma0060491	NCP	mg/kg	10	16	42	30%	Fail	Q15
Cadmium	S24-Ma0060491	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S24-Ma0060491	NCP	mg/kg	16	21	30	30%	Pass	
Copper	S24-Ma0060491	NCP	mg/kg	34	45	27	30%	Pass	
Lead	S24-Ma0060491	NCP	mg/kg	19	23	17	30%	Pass	
Mercury	S24-Ma0060491	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S24-Ma0060491	NCP	mg/kg	16	22	29	30%	Pass	
Zinc	N24-Ma0054990	NCP	mg/kg	47	42	11	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ma0062228	NCP	%	14	12	19	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Adam Bateup	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Environmental Division
Sydney
Work Order Reference
ES2409727

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Lat: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes 7.6 No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contai
e.g. "High PAHs expecte
Extra volume for QC or

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	FOREIGN MAT	ASBESTOS (ABS / PACE)	OCP/OPP/PCB	TRH/8 TEXN/ PAH/8 METALS	PHENOLS	COAL TAR	8 MBTACS	C6-C9	BTEXN	HOLD
1	R-BH28(A)_0.2-0.3	S	29/3	PM	J, ZLB	1,1										
2	-0.5-0.6															
3	-0.8-0.9							X	X	X	X					
4	-1.1-1.2															
5	R-CO01(A)_0.0	M			ZLB	1						X				
6	-0.2-0.3	S			J, ZLB	1,1		X	X	X	X					
7	-0.6-0.8															
8	-1.2-1.3									X						
9	ACM_BH05(A)_0.2															
10	-0.45							X								
11	ACM_BH09(A)_0.5-0.6							X	X	X	X					
12	-1.3-1.4															X
13	-1.8-1.9												X			X
14	QC100-20240318				J	1							X			
—	QC200-20240318					1							X			→ FORWARD TO
15	QC300-20240318	W			V,AG,P	2,1,1										X EUROFINS
16	R-BH28(A)_0.0-0.0	S			BB	1	X									
17	ACM-BH05(A)_0.25-0.6						X									
18	TRIP BLANK		lab prepared		J	1								X		
19	TRIP SPIKE					1									X	

RELINQUISHED BY:	RECEIVED BY	RECEIVED BY	METHOD OF SHIPMENT
Name: ERIC SERTTAS	Name:	Name: [illegible]	Con' Note No:
Of:	Of:	Of: AU	Transport Co:
Date: 20/3/24	Date: 20/3	Date: 20/3/24	
Time: AM	Time: [illegible]	Time: 1930	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

1081719

Q4AN(EV)-007-FM1 (3)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2016

Page 1 of 1

Telephone : +61-2-8784 8555

Attached By PO / Internal Sheet
WO No: ES2409727
Comments / Instructions

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GEO TEAM	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION																
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (AB/S)	TRH/BTEXN/ PAH / 8METALS	OCP/OPP/PCB	PHENOLS										HOLD	
20	BH32-0.015-0.15	S	19/3	AM	J, ZB	4 1	X	X													
21	-0.15-0.65																				
22	-0.65-0.8							X													
23	-1.7-1.9																				
24	BH37-0.04-0.035			PM																	
25	-0.13-0.3						X	X													
26	-0.3-0.5																				
27	-0.8-1.0							X													
28	-1.6-1.8																				
29	R-TP11-0.0-0.1			PM																	
30	-0.3-0.5						X	X	X	X											
31	TS																				

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 20/3/24	Name:	Date:	Name: LUCAS	Date: 20/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: AQ	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar *Soil Container Codes:* Jar = Unpreserved glass jar

COC Page 2 of 2

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Asb)	Christchurch	Tauranga
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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736
Turnaround time:	5 Day
Date/Time received	Mar 26, 2024 12:00 AM
Eurofins reference	1081719

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 2.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Perth
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Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Auckland (Asb)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736

Order No.: 60709736 - CDRL 1100
Report #: 1081719
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Mar 26, 2024 12:00 AM
Due: Apr 4, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Metals M8	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200-2024031S	Mar 25, 2024		Soil	S24-Ma0062587	X	X
Test Counts						1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1081737-S-V2**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Mar 26, 2024

Client Sample ID			**QC200-20240317**	**QC200-20240318**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S24-Ma0062673**	**S24-Ap0021403**
Date Sampled			**Mar 17, 2024**	**Mar 17, 2024**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	76	51
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			QC200-20240317	QC200-20240318
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ma0062673	S24-Ap0021403
Date Sampled			Mar 17, 2024	Mar 17, 2024
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	75	148
p-Terphenyl-d14 (surr.)	1	%	INT	117
Heavy Metals				
Arsenic	2	mg/kg	16	4.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	42	28
Copper	5	mg/kg	< 5	16
Lead	5	mg/kg	11	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	5.9
Zinc	5	mg/kg	< 5	11
Sample Properties				
% Moisture	1	%	20	13
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	-
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	-
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	-
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	-
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	-
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	-
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	-
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	-
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	-
13C4-PFBA (surr.)	1	%	75	-
13C5-PFPeA (surr.)	1	%	79	-
13C5-PFHxA (surr.)	1	%	79	-
13C4-PFHpA (surr.)	1	%	81	-
13C8-PFOA (surr.)	1	%	90	-
13C5-PFNA (surr.)	1	%	93	-
13C6-PFDA (surr.)	1	%	99	-
13C2-PFUnDA (surr.)	1	%	88	-
13C2-PFDoDA (surr.)	1	%	109	-
13C2-PFTeDA (surr.)	1	%	113	-

Client Sample ID			QC200-20240317	QC200-20240318
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ma0062673	S24-Ap0021403
Date Sampled			Mar 17, 2024	Mar 17, 2024
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	-
13C8-FOSA (surr.)	1	%	81	-
D3-N-MeFOSA (surr.)	1	%	107	-
D5-N-EtFOSA (surr.)	1	%	115	-
D7-N-MeFOSE (surr.)	1	%	91	-
D9-N-EtFOSE (surr.)	1	%	84	-
D5-N-EtFOSAA (surr.)	1	%	41	-
D3-N-MeFOSAA (surr.)	1	%	35	-
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	-
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	-
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	-
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	-
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	-
13C3-PFBS (surr.)	1	%	83	-
18O2-PFHxS (surr.)	1	%	88	-
13C8-PFOS (surr.)	1	%	97	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	-
13C2-4:2 FTSA (surr.)	1	%	69	-
13C2-6:2 FTSA (surr.)	1	%	47	-
13C2-8:2 FTSA (surr.)	1	%	95	-
13C2-10:2 FTSA (surr.)	1	%	105	-
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 10, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Apr 10, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Sydney	Mar 27, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Sydney	Mar 27, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Sydney	Mar 27, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Sydney	Mar 27, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Sydney	Mar 26, 2024	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1081737
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Mar 26, 2024 12:40 PM
Due: Apr 4, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QC200-20240318	Mar 17, 2024		Soil	S24-Ap0021403	X	X	
2	QC200-20240317	Mar 17, 2024		Soil	S24-Ma0062673	X	X	X
Test Counts						2	2	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ppm: parts per million
µg/L: micrograms per litre
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit
Colour: Pt-Co Units (CU)

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
PFASs Summations							
Sum of US EPA PFAS (PFOS + PFOA)*	ug/kg	< 5			5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	71			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
TRH >C10-C16	%	70			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	88			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	84			70-130	Pass	
m&p-Xylenes	%	92			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total*	%	93			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	84			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	81			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	%	74			70-130	Pass	
Benzo(g.h.i)perylene	%	86			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	87			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	86			70-130	Pass	
Fluorene	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	88			70-130	Pass	
Naphthalene	%	83			70-130	Pass	
Phenanthrene	%	84			70-130	Pass	
Pyrene	%	87			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	96			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	101			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	101			80-120	Pass	
Mercury	%	103			80-120	Pass	
Nickel	%	99			80-120	Pass	
Zinc	%	99			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	104			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	128			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	129			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	113			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	118			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorononanoic acid (PFNA)	%	128			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	121			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	110			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	130			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	130			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	122			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	117			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	100			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	116			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	119			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	126			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	106			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	120			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	102			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	126			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	105			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	119			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	129			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	142			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	122			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	134			50-150	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	93			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	92			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	94			70-130	Pass	
Benzo(g.h.i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	88			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	85			70-130	Pass	
Fluoranthene	%	89			70-130	Pass	
Fluorene	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	87			70-130	Pass	
Pyrene	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ma0070553	NCP	%	74			70-130	Pass	
TRH C10-C14	S24-Ap0016363	NCP	%	85			70-130	Pass	
TRH C6-C10	S24-Ma0070553	NCP	%	74			70-130	Pass	
TRH >C10-C16	S24-Ap0016363	NCP	%	82			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ma0070553	NCP	%	75			70-130	Pass	
Toluene	S24-Ma0070553	NCP	%	75			70-130	Pass	
Ethylbenzene	S24-Ma0070553	NCP	%	73			70-130	Pass	
m&p-Xylenes	S24-Ma0070553	NCP	%	81			70-130	Pass	
o-Xylene	S24-Ma0070553	NCP	%	82			70-130	Pass	
Xylenes - Total*	S24-Ma0070553	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ma0070553	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S24-Ap0020953	NCP	%	84			70-130	Pass	
Acenaphthylene	S24-Ap0020953	NCP	%	90			70-130	Pass	
Anthracene	S24-Ap0020953	NCP	%	88			70-130	Pass	
Benz(a)anthracene	S24-Ap0020953	NCP	%	86			70-130	Pass	
Benzo(a)pyrene	S24-Ap0020953	NCP	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	S24-Ap0020953	NCP	%	84			70-130	Pass	
Benzo(g.h.i)perylene	S24-Ap0020953	NCP	%	84			70-130	Pass	
Benzo(k)fluoranthene	S24-Ap0020953	NCP	%	89			70-130	Pass	
Chrysene	S24-Ap0020953	NCP	%	89			70-130	Pass	
Dibenz(a.h)anthracene	S24-Ap0020953	NCP	%	81			70-130	Pass	
Fluoranthene	S24-Ap0020953	NCP	%	90			70-130	Pass	
Fluorene	S24-Ap0020953	NCP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0020953	NCP	%	82			70-130	Pass	
Naphthalene	S24-Ap0020953	NCP	%	88			70-130	Pass	
Phenanthrene	S24-Ap0020953	NCP	%	93			70-130	Pass	
Pyrene	S24-Ap0020953	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ma0065393	NCP	%	98			75-125	Pass	
Cadmium	S24-Ma0065393	NCP	%	102			75-125	Pass	
Chromium	S24-Ma0065393	NCP	%	100			75-125	Pass	
Copper	S24-Ma0065393	NCP	%	100			75-125	Pass	
Lead	S24-Ma0066455	NCP	%	98			75-125	Pass	
Mercury	S24-Ma0065393	NCP	%	103			75-125	Pass	
Nickel	S24-Ma0065393	NCP	%	97			75-125	Pass	
Zinc	S24-Ma0066455	NCP	%	103			75-125	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	S24-Ma0065845	NCP	%	111			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S24-Ma0065845	NCP	%	115			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S24-Ma0065845	NCP	%	119			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S24-Ma0065845	NCP	%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ma0065845	NCP	%	107			50-150	Pass	
Perfluorononanoic acid (PFNA)	S24-Ma0065845	NCP	%	120			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S24-Ma0065845	NCP	%	99			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroundecanoic acid (PFUnDA)	S24-Ma0065845	NCP	%	127			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S24-Ma0065845	NCP	%	126			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S24-Ma0065845	NCP	%	108			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S24-Ma0065845	NCP	%	107			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S24-Ma0065845	NCP	%	116			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S24-Ma0065845	NCP	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S24-Ma0065845	NCP	%	125			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S24-Ma0065845	NCP	%	119			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S24-Ma0065845	NCP	%	112			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S24-Ma0065845	NCP	%	105			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S24-Ma0065845	NCP	%	107			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S24-Ma0065845	NCP	%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S24-Ma0065845	NCP	%	114			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S24-Ma0065845	NCP	%	95			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S24-Ma0065845	NCP	%	80			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ma0065845	NCP	%	105			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S24-Ma0065845	NCP	%	117			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ma0065845	NCP	%	112			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S24-Ma0065845	NCP	%	120			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S24-Ma0065845	NCP	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ma0065845	NCP	%	69			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S24-Ma0065845	NCP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S24-Ma0065845	NCP	%	100			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0002001	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ma0063896	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ma0063896	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C29-C36	S24-Ma0063896	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	S24-Ap0002001	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ma0063896	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ma0063896	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ma0063896	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0002001	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S24-Ap0002001	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S24-Ap0002001	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S24-Ap0002001	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S24-Ap0002001	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S24-Ap0002001	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0002001	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	R24-Ma0059903	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ma0061932	NCP	mg/kg	4.9	5.0	<1	30%	Pass	
Cadmium	S24-Ma0061932	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S24-Ma0061932	NCP	mg/kg	20	18	12	30%	Pass	
Copper	S24-Ma0061932	NCP	mg/kg	30	32	6.3	30%	Pass	
Lead	S24-Ma0061932	NCP	mg/kg	16	16	1.8	30%	Pass	
Mercury	S24-Ma0061932	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S24-Ma0061932	NCP	mg/kg	46	47	2.1	30%	Pass	
Zinc	S24-Ma0061932	NCP	mg/kg	53	51	3.0	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ma0062228	NCP	%	14	12	19	30%	Pass	

Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	W24-Ma0055053	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	W24-Ma0055053	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	W24-Ma0055053	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	W24-Ma0055053	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0021403	CP	mg/kg	4.7	6.0	24	30%	Pass	
Cadmium	S24-Ap0021403	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Lead	S24-Ap0021403	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S24-Ap0021403	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Zinc	S24-Ap0021403	CP	mg/kg	11	11	1.4	30%	Pass	

Comments

This report has been revised (V2) to correctly report both S24-Ma0062673 (60709736-CDRL 1100) and S24-Ap0021403 (QC200-20240318) as separate samples.

All originally reported results for sample S24-Ma0062673 have been repeated and replaced with the repeated results.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Adam Bateup	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ANZ

FQM - Generic Chain of Custody Form

Environmental Division Sydney

Work Order Reference

ES2409702

Telephone : + 61-2-8784 8555

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Eric Serttas	
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric)	PHONE:
PROJECT NUMBER & TASK COI 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite pr	

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes 7.6 No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	Asbestos (ABS/FA)	TRHs/BTEXN/ PAHs/ Smokes	PHENOLS	CHCs	Ammonia	PFAS	OCP/OPP/ PCB						HOLD	
1	BH30_0.4-0.5	S	17/3	PM	J, ZLB, PF	1,1,1	X	X	X	X	X	X								
2	-0.9-1.0							X	X	X	X	X								
3	-2.0-2.1																		X	
4	QC100_20240317				J, PF	1,1		X				X								
—	QC200_20240317							X				X								→ FORWARD TO
5	QC700-20240317	W	17/3	PM	V, AG, P, PF	3,1,2													X	EUROFINS (QC800)
6	BH38_0.6-0.7	S	18/3	AM	J, ZLB	1,1	X	X	X											
7	-1.2-1.3					1,1		X	X											
8	QC100_20240318				J	1		X												
—	QC200_20240318					1		X												→ FORWARD TO
9	HA56_mulch	m	18/3	PM	ZLB	1	X													EUROFINS (QC200)
10	-0.3-0.4	S			J, ZLB	1,1													X	
11	HA57_mulch	m			ZLB	1	X													
12	-0.3-0.4	S			J, ZLB	1,1													X	
13	HA58_0.0-0.2						X	X	X				X							
14	-0.4-0.5																		X	
15	HA59_0.2-0.3																		X	
16	-0.6-0.7						X	X	X				X							
17	-1.0-1.1																		X	
18	HA60_0.2-0.3																		X	
19	-0.7-0.8						X	X	X				X							

Split 1 of 2 for analysis

QC200 20240317 QC200-SOIC16 Analysis

ES 2409702

RELINQUISHED BY:	RECEIVED BY	RECEIVED BY	METHOD OF SHIPMENT:
Name: Eric Serttas	Name: [illegible]	Name: WCAS	Con' Note No:
Of:	Of:	Of: AUS	Transport Co:
Date: 18/3/24	Date: 18/3/24	Date: 20/3/24	
Time: AM	Time: 12.40	Time: 1430	

By PO Inter Sheet

Q4AN(EV)-007-FM1 (3)
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2016

1081737

1/2

ANZ

AECOM

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric)	PHONE:
PROJECT NUMBER & TASK COI 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		PFOS/PFOA MNT	6-6S	BTEXN											HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles															
20	HA56_0.0-0.8	S	18/3	PM	DB	1	X														
21	HA57_0.0-0.8	↓	↓	↓	↓	↓	↓														
22	HA58_0.0-0.5																				
23	HA59_0.0-1.3																				
24	HA60_0.0-1.0	↓	↓	↓	↓	↓	↓														
25	QC300_20240318	W	18/3	↓	V,A6,P	2,1,1														X	
26	TRIP BLANK	S	lab prep		J	↓		X													
27	TRIP SPIKE	↓	↓		↓	↓			X												
28	TSC																				

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 18/3/24	Name:	Date:	Name: Wes	Date: 20/3/24	Con' Note No:
Of:	Time: PM	Of:	Time:	Of: AS	Time: 1930	Transport Co:

www.eurofins.com.au EnviroSales@eurofins.com

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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Mar 26, 2024 12:40 PM
Eurofins reference	1081737

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 2.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1081737
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Mar 26, 2024 12:40 PM
Due: Apr 4, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QC200-20240318	Mar 17, 2024		Soil	S24-Ap0021403	X	X	
2	QC200-20240317	Mar 17, 2024		Soil	S24-Ma0062673	X	X	X
Test Counts						2	2	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1083748-S**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Apr 03, 2024

Client Sample ID			**QC200_20240327**
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0004911**
Date Sampled			**Mar 27, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5

Client Sample ID			QC200_20240327
Sample Matrix			Soil
Eurofins Sample No.			S24-Ap0004911
Date Sampled			Mar 27, 2024
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99
p-Terphenyl-d14 (surr.)	1	%	90
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Nitrophenol	1	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4
Total cresols*	0.5	mg/kg	< 0.5
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Phenol-d6 (surr.)	1	%	80
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Heavy Metals			
Arsenic	2	mg/kg	5.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	16
Copper	5	mg/kg	14
Lead	5	mg/kg	14
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	24
Sample Properties			
% Moisture	1	%	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Apr 03, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1083748
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 3, 2024 4:25 PM
Due: Apr 10, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7A
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240327	Mar 27, 2024		Soil	S24-Ap0004911	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ppm: parts per million
µg/L: micrograms per litre
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit
Colour: Pt-Co Units (CU)

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	111			70-130	Pass	
TRH C10-C14	%	76			70-130	Pass	
TRH C6-C10	%	111			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	117			70-130	Pass	
m&p-Xylenes	%	116			70-130	Pass	
o-Xylene	%	127			70-130	Pass	
Xylenes - Total*	%	120			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	91			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	98			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	97			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	94			70-130	Pass	
Benzo(g.h.i)perylene	%	104			70-130	Pass	
Benzo(k)fluoranthene	%	108			70-130	Pass	
Chrysene	%	106			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	110			70-130	Pass	
Naphthalene	%	99			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	106			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	84			25-140	Pass	
2.4-Dichlorophenol	%	83			25-140	Pass	
2.4.5-Trichlorophenol	%	77			25-140	Pass	
2.4.6-Trichlorophenol	%	75			25-140	Pass	
2.6-Dichlorophenol	%	90			25-140	Pass	
4-Chloro-3-methylphenol	%	83			25-140	Pass	
Pentachlorophenol	%	71			25-140	Pass	
Tetrachlorophenols - Total	%	79			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	75			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	79			25-140	Pass	
2-Nitrophenol	%	89			25-140	Pass	
2.4-Dimethylphenol	%	88			25-140	Pass	
2.4-Dinitrophenol	%	89			25-140	Pass	
2-Methylphenol (o-Cresol)	%	88			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	88			25-140	Pass	
4-Nitrophenol	%	71			25-140	Pass	
Dinoseb	%	71			25-140	Pass	
Phenol	%	85			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	95			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	107			80-120	Pass	
Mercury	%	113			80-120	Pass	
Nickel	%	103			80-120	Pass	
Zinc	%	103			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0012719	NCP	%	79			70-130	Pass	
TRH C10-C14	S24-Ap0010332	NCP	%	85			70-130	Pass	
TRH C6-C10	S24-Ap0012719	NCP	%	80			70-130	Pass	
TRH >C10-C16	S24-Ap0010332	NCP	%	82			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0012719	NCP	%	90			70-130	Pass	
Toluene	S24-Ap0012719	NCP	%	86			70-130	Pass	
Ethylbenzene	S24-Ap0012719	NCP	%	78			70-130	Pass	
m&p-Xylenes	S24-Ap0012719	NCP	%	80			70-130	Pass	
o-Xylene	S24-Ap0012719	NCP	%	80			70-130	Pass	
Xylenes - Total*	S24-Ap0012719	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0019440	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N24-Ap0010789	NCP	%	99			70-130	Pass	
Acenaphthylene	N24-Ap0010789	NCP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Anthracene	N24-Ap0010789	NCP	%	98			70-130	Pass	
Benz(a)anthracene	N24-Ap0010789	NCP	%	99			70-130	Pass	
Benzo(a)pyrene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	N24-Ap0010789	NCP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	N24-Ap0010789	NCP	%	97			70-130	Pass	
Benzo(k)fluoranthene	N24-Ap0010789	NCP	%	110			70-130	Pass	
Chrysene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Dibenz(a.h)anthracene	N24-Ap0010789	NCP	%	102			70-130	Pass	
Fluoranthene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Fluorene	N24-Ap0010789	NCP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N24-Ap0010789	NCP	%	109			70-130	Pass	
Naphthalene	N24-Ap0010789	NCP	%	100			70-130	Pass	
Phenanthrene	N24-Ap0010789	NCP	%	103			70-130	Pass	
Pyrene	N24-Ap0010789	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S24-Ap0010491	NCP	%	89			30-130	Pass	
2.4-Dichlorophenol	S24-Ap0010491	NCP	%	79			30-130	Pass	
2.4.5-Trichlorophenol	S24-Ap0010491	NCP	%	90			30-130	Pass	
2.4.6-Trichlorophenol	S24-Ap0010491	NCP	%	90			30-130	Pass	
2.6-Dichlorophenol	S24-Ap0010491	NCP	%	87			30-130	Pass	
4-Chloro-3-methylphenol	S24-Ap0010491	NCP	%	85			30-130	Pass	
Tetrachlorophenols - Total	S24-Ap0010491	NCP	%	77			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S24-Ma0066710	NCP	%	85			30-130	Pass	
2-Nitrophenol	S24-Ap0010491	NCP	%	91			30-130	Pass	
2.4-Dimethylphenol	S24-Ap0013136	NCP	%	86			30-130	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0013136	NCP	%	77			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0013136	NCP	%	90			30-130	Pass	
Dinoseb	S24-Ma0066710	NCP	%	76			30-130	Pass	
Phenol	S24-Ap0010491	NCP	%	102			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ap0010342	NCP	%	105			75-125	Pass	
Cadmium	S24-Ap0010342	NCP	%	111			75-125	Pass	
Chromium	S24-Ap0010342	NCP	%	109			75-125	Pass	
Copper	S24-Ap0010342	NCP	%	113			75-125	Pass	
Lead	S24-Ap0010342	NCP	%	106			75-125	Pass	
Mercury	S24-Ap0010342	NCP	%	121			75-125	Pass	
Nickel	S24-Ap0010342	NCP	%	115			75-125	Pass	
Zinc	S24-Ap0010342	NCP	%	118			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	R24-Ap0003832	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0004911	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0004911	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0004911	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	R24-Ap0003832	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0004911	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0004911	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0004911	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	R24-Ap0003832	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	R24-Ap0003832	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	R24-Ap0003832	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	R24-Ap0003832	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	R24-Ap0003832	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	R24-Ap0003832	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	R24-Ap0003832	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0013142	NCP	mg/kg	0.6	0.6	3.7	30%	Pass	
Fluorene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0013142	NCP	mg/kg	0.5	0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S24-Ap0013142	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	R24-Ma0067454	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	R24-Ma0067454	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S24-Ap0013142	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0004991	NCP	mg/kg	5.3	4.8	9.9	30%	Pass	
Cadmium	S24-Ap0004991	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S24-Ap0004991	NCP	mg/kg	10	13	24	30%	Pass	
Copper	S24-Ap0004991	NCP	mg/kg	32	13	84	30%	Fail	Q15
Lead	S24-Ap0010339	NCP	mg/kg	18	18	3.7	30%	Pass	
Mercury	S24-Ap0004991	NCP	mg/kg	0.2	0.1	67	30%	Fail	Q15
Nickel	S24-Ap0004991	NCP	mg/kg	5.6	< 5	85	30%	Fail	Q15
Zinc	S24-Ap0010329	NCP	mg/kg	190	170	14	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0004707	NCP	%	5.5	6.2	12	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Nileshni Goundar	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68! (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes 1.3, 7.8, 5.0 No 6.7

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

Subcon Forward Lab / Split WO
Lab / Analysis Eurofins - QC200-20240327
Organised By / Date:
Relinquished By / Date:
Compare / Caution:
WO No.:
Attached By PO / Internal Sheet:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	PHENOLS	TEH/BTEXN	PAH/SVOC/METALS
1	BH01-0.1-0.2	S	27/3	PM	J, ZLB	1,1			
2	-1.1-1.2						X	X	
3	-2.0-2.1								
4	-2.8-2.9						X	X	
5	-3.8-3.9								
6	TRIP BLANK								
7	TRIP SPIKE								
8	QC100-20240327					1	X	X	
-	QC200-20240327						~	X	Forward to Eurofins
9	QC300-20240327	W	27/3	PM	AG, P, V	1,1,2		X	

Environmental Division
Sydney
Work Order Reference
ES2410231
Telephone : 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY				METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 28/3	Name: JOM	Date: 28/3/24	Name:	Date:	Con' Note No:
Of:	Time: PM	Of: AES	Time: 9am	Of:	Time:	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG – Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 1 of 1

Recd 28/3/24 1850

Recd 4/4/24 9:25pm 6.7°C

10837148

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 3, 2024 4:25 PM
Eurofins reference	1083748

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 6.7 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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Site# 20794

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1083748
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 3, 2024 4:25 PM
Due: Apr 10, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7A
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240327	Mar 27, 2024		Soil	S24-Ap0004911	X	X
Test Counts						1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1084238-S**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Apr 04, 2024

Client Sample ID			**QC200_20240322**
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0008519**
Date Sampled			**Mar 22, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	139
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.4
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.9
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.9
Benzo(a)pyrene	0.5	mg/kg	1.0
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.8
Benzo(g.h.i)perylene	0.5	mg/kg	0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.2

Client Sample ID			QC200_20240322
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0008519**
Date Sampled			**Mar 22, 2024**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Chrysene	0.5	mg/kg	1.0
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	2.3
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.6
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	1.0
Pyrene	0.5	mg/kg	2.2
Total PAH*	0.5	mg/kg	12
2-Fluorobiphenyl (surr.)	1	%	79
p-Terphenyl-d14 (surr.)	1	%	INT
Heavy Metals			
Arsenic	2	mg/kg	46
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	22
Copper	5	mg/kg	140
Lead	5	mg/kg	650
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	17
Zinc	5	mg/kg	2000
Sample Properties			
% Moisture	1	%	8.9

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Apr 04, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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Eurofins Environment Testing Australia Pty Ltd
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084238
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:59 PM
Due: Apr 9, 2024
Priority: 3 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240322	Mar 22, 2024		Soil	S24-Ap0008519	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	106			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	91			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
TRH >C10-C16	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	96			70-130	Pass	
Xylenes - Total*	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	98			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	99			70-130	Pass	
Anthracene	%	100			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	%	92			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	117			70-130	Pass	
Chrysene	%	106			70-130	Pass	
Dibenz(a.h)anthracene	%	90			70-130	Pass	
Fluoranthene	%	102			70-130	Pass	
Fluorene	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	93			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	96			80-120	Pass	
Copper	%	103			80-120	Pass	
Lead	%	104			80-120	Pass	
Mercury	%	104			80-120	Pass	
Nickel	%	103			80-120	Pass	
Zinc	%	103			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0008519	CP	%	92			70-130	Pass	
TRH C10-C14	S24-Ap0008519	CP	%	89			70-130	Pass	
TRH C6-C10	S24-Ap0008856	NCP	%	100			70-130	Pass	
TRH >C10-C16	S24-Ap0008519	CP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0008856	NCP	%	90			70-130	Pass	
Toluene	S24-Ap0008856	NCP	%	89			70-130	Pass	
Ethylbenzene	S24-Ap0008856	NCP	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	S24-Ap0008856	NCP	%	90			70-130	Pass	
o-Xylene	S24-Ap0008856	NCP	%	89			70-130	Pass	
Xylenes - Total*	S24-Ap0008856	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0008856	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ap0009728	NCP	%	97			75-125	Pass	
Cadmium	S24-Ap0008519	CP	%	82			75-125	Pass	
Chromium	S24-Ap0009728	NCP	%	91			75-125	Pass	
Copper	S24-Ap0009728	NCP	%	103			75-125	Pass	
Lead	S24-Ap0009728	NCP	%	118			75-125	Pass	
Mercury	S24-Ap0008519	CP	%	78			75-125	Pass	
Nickel	S24-Ap0009728	NCP	%	99			75-125	Pass	
Zinc	S24-Ap0002503	NCP	%	94			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0008791	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0003169	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	S24-Ap0008791	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0003169	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0003169	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0008791	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S24-Ap0008791	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S24-Ap0008791	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S24-Ap0008791	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S24-Ap0008791	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S24-Ap0008791	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0008791	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0009234	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0008058	NCP	mg/kg	7.2	7.0	2.5	30%	Pass	
Cadmium	S24-Ap0008058	NCP	mg/kg	1.3	1.4	7.8	30%	Pass	
Chromium	S24-Ap0008058	NCP	mg/kg	73	75	1.8	30%	Pass	
Copper	S24-Ap0008058	NCP	mg/kg	1000	1100	6.6	30%	Pass	
Lead	S24-Ap0008058	NCP	mg/kg	190	190	3.3	30%	Pass	
Mercury	S24-Ap0008058	NCP	mg/kg	0.6	0.5	22	30%	Pass	
Nickel	S24-Ap0008058	NCP	mg/kg	35	38	9.0	30%	Pass	
Zinc	S24-Ap0008058	NCP	mg/kg	1600	1700	3.1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0008131	NCP	%	38	41	6.8	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Nileshni Goundar	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Fadi Soro

From: Loren Schiavon
Sent: Wednesday, 3 April 2024 12:20 AM
To: Samples Sydney
Subject: FW: [EXTERNAL] - RE: CoC for ALS Workorder : ES2409765 | Your Reference: 60709736 - CDRL 1100

Hi Fadi,
Can I get you to forward sample ES2409765 #2 to Eurofins for analysis as per the client request below? Lease send with a copy of the original COC.

- Sydney samples are in trays: S-387, S-390, SV-106, M-013/A, V-175/C,

Thanks.

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office

1084230

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Tuesday, April 2, 2024 8:42 AM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; Sepan Mahamad <Sepan.Mahamad@alsglobal.com>
Subject: [EXTERNAL] - RE: CoC for ALS Workorder : ES2409765 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please forward the sample QC200 to Eurofins please?

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM
Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

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From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, March 26, 2024 3:03 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: CoC for ALS Workorder : ES2409765 | Your Reference: 60709736 - CDRL 1100

Deliverables for ALS Workorder ES2409765

Project: 60709736 - CDRL 1100

Dear Eric Serttas,

Please find enclosed the following deliverables for ES2409765:

- ES2409765_COC.pdf

Report Recipients

- Eric Serttas
  - ES2409765_COC.pdf (Email)
- ACCOUNTS PAYABLE
  - ES2409765_COC.pdf (Email)
- [illegible]

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AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER:	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68! (Eric) PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.serfass@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): ~~Standard TAT~~ 3 days TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated sam
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		Asbestos (ARS/MEG)	OCP/OPP/PCB	TRH/BTEX/PAH/Phenols	CHCs	PHenols	HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles							
1									X				
2									X				
3												X	
4												X	
5												X	
6							X	X	X		X		
7												X	
8									X	X	X		
9							X						
10									X	X			
11												X	
12												X	
13	QC 300-20240322	W	22/3/24		4 vials				X				

* PLEASE PRIORITISE ASBESTOS CLOSE TO HOLDING TIME

received as 20240322-R-BH57-04-

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF S
Name: Eric Serfass	Date: 25/3/24	Name:	Date:	Name: Mary	Date: 25/3/24	Con' Note No:
Of: Aecom	Time: am	Of:	Time:	Of: ALS	Time: 1020	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
E = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

Environmental Division
Sydney
Work Order Reference
ES2409765

COC Page

Received by: Mary Ann 4/4
3:59 PM 14.6 °C

Telephone - 61-2-8784 8555

SAMPLE COC FORM
FQM - Generic Chain of Custody (MEQ/EV/FM1)
Revision 7 - June 17, 2019

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Asb)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	3 Day
Date/Time received	Apr 4, 2024 3:59 PM
Eurofins reference	1084238

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 14.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Please confirm analysis.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
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+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd
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Perth
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+61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084238
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:59 PM
Due: Apr 9, 2024
Priority: 3 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240322	Mar 22, 2024		Soil	S24-Ap0008519	X	X
Test Counts						1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Kate McGrath**

Report **1084484-S**
Project name
Project ID 60709736-CDRL 1100
Received Date Apr 04, 2024

Client Sample ID			**QC200_20240326**
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0010434**
Date Sampled			**Mar 26, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	22
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	23
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	23
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5

Client Sample ID			QC200_20240326
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0010434**
Date Sampled			**Mar 26, 2024**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	75
p-Terphenyl-d14 (surr.)	1	%	77
Heavy Metals			
Arsenic	2	mg/kg	8.1
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	24
Copper	5	mg/kg	5.6
Lead	5	mg/kg	11
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	10
Sample Properties			
% Moisture	1	%	14

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Apr 05, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

Eurofins Environment Testing Australia Pty Ltd
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Project Name:
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084484
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Kate McGrath

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240326	Mar 26, 2024		Soil	S24-Ap0010434	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	82			70-130	Pass	
TRH C6-C10	%	105			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total*	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	105			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	86			70-130	Pass	
Acenaphthylene	%	84			70-130	Pass	
Anthracene	%	76			70-130	Pass	
Benz(a)anthracene	%	87			70-130	Pass	
Benzo(a)pyrene	%	86			70-130	Pass	
Benzo(b&j)fluoranthene	%	92			70-130	Pass	
Benzo(g.h.i)perylene	%	82			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	91			70-130	Pass	
Dibenz(a.h)anthracene	%	86			70-130	Pass	
Fluoranthene	%	94			70-130	Pass	
Fluorene	%	93			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	98			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	89			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	101			80-120	Pass	
Mercury	%	103			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	102			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0002063	NCP	%	87			70-130	Pass	
TRH C10-C14	N24-Ap0006943	NCP	%	83			70-130	Pass	
TRH C6-C10	S24-Ap0009621	NCP	%	71			70-130	Pass	
TRH >C10-C16	N24-Ap0006943	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0009621	NCP	%	74			70-130	Pass	
Toluene	S24-Ap0009621	NCP	%	79			70-130	Pass	
Ethylbenzene	S24-Ap0002063	NCP	%	73			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	S24-Ap0009621	NCP	%	75			70-130	Pass	
o-Xylene	S24-Ap0009621	NCP	%	76			70-130	Pass	
Xylenes - Total*	S24-Ap0009621	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0009621	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S24-Ap0020943	NCP	%	80			70-130	Pass	
Acenaphthylene	S24-Ap0020943	NCP	%	86			70-130	Pass	
Benz(a)anthracene	S24-Ap0020943	NCP	%	86			70-130	Pass	
Benzo(a)pyrene	S24-Ap0020943	NCP	%	82			70-130	Pass	
Benzo(b&j)fluoranthene	S24-Ap0020943	NCP	%	73			70-130	Pass	
Benzo(g.h.i)perylene	S24-Ap0020943	NCP	%	99			70-130	Pass	
Benzo(k)fluoranthene	S24-Ap0020943	NCP	%	80			70-130	Pass	
Chrysene	S24-Ap0020943	NCP	%	80			70-130	Pass	
Dibenz(a.h)anthracene	S24-Ap0020943	NCP	%	84			70-130	Pass	
Fluorene	S24-Ap0020943	NCP	%	85			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0020943	NCP	%	84			70-130	Pass	
Naphthalene	S24-Ap0020943	NCP	%	80			70-130	Pass	
Phenanthrene	S24-Ap0020943	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N24-Ap0006361	NCP	%	101			75-125	Pass	
Cadmium	N24-Ap0006361	NCP	%	102			75-125	Pass	
Chromium	N24-Ap0006361	NCP	%	87			75-125	Pass	
Copper	N24-Ap0006361	NCP	%	102			75-125	Pass	
Lead	N24-Ap0006700	NCP	%	105			75-125	Pass	
Mercury	N24-Ap0006361	NCP	%	114			75-125	Pass	
Nickel	N24-Ap0006361	NCP	%	101			75-125	Pass	
Zinc	S24-Ap0010342	NCP	%	118			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0012067	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0010490	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0010490	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0010490	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	S24-Ap0012067	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0010490	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0010490	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0010490	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0012067	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S24-Ap0012067	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S24-Ap0012067	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S24-Ap0012067	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S24-Ap0012067	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S24-Ap0012067	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0012067	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0020944	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N24-Ap0006420	NCP	mg/kg	6.4	7.9	20	30%	Pass	
Cadmium	N24-Ap0006420	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	N24-Ap0006420	NCP	mg/kg	12	11	7.6	30%	Pass	
Mercury	N24-Ap0006420	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	N24-Ap0006420	NCP	mg/kg	11	10	5.1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0010355	NCP	%	16	13	15	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Nileshni Goundar	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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PAGE 1

AECOM

Q4AN(EV)-007-FM1

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GBOTBCH TEAM	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68 (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	COAL TAR	ASBESTOS (AF/FA)	FOREIGN MAT. (CEnM ASS)	TLH/BTEX	PAH/Smerals	PHENOLS	OCP/OPP/PCB	HOLD
1	ACM-TP15-1.7-2.1m	S	26/03/24	/	1xJAR+1xBAG									X
2	ACM-TP15-0.2-0.5m	S	26/03/24	/	1xJAR+1xBAG									X
3	ACM-TP15-0.5-1.0m	S	26/03/24	/	1xJAR+1xBAG					X	X	X		X
4	ACM-TP15-0-0.2m	S	26/03/24	/	1xJAR+1xBAG									X
5	ACM-TP15-0-0.01m	S	26/03/24	/	1xJAR	*COLD	TAR X							X
6	ACM-TP15-1.2-1.7m	S	26/03/24	/	1xBAG									X
7	A-TP05-0.4-0.9m	S	26/03/24	/	1xJAR+1xBAG									X
8	A-TP05-0.04-0.2m	S	26/03/24	/	1xJAR+1xBAG			X		X	X	X	X	X
9	A-TP05-0.9-1.0m	S	26/03/24	/	1xJAR+1xBAG					X	X	X	X	X
10	A-TP05-0-0.04m	S	26/03/24	/	1xJAR	*COLD	TAR							X
11	ACM-TP01-0-0.05m	S	26/03/24	/	1xJAR	*COLD	TAR							X
12	ACM-TP01-0.7-1.3m	S	26/03/24	-	1xJAR+1xBAG					X	X	X	X	X
13	ACM-TP01-0.09-0.3	S	26/03/24	-	1xJAR+1xBAG									X
14	ACM-TP01-0.5-0.7m	S	26/03/24	-	1xJAR+1xBAG			X		X	X	X	X	X
15	ACM-TP15-1.7-2.1m	S	26/03/24	/	1xBULK BAG									X
16	ACM-TP15-0.2-1.7m	S	26/03/24	-	1xBULK BAG									X
17	ACM-TP15-0.04-0.2m	S	26/03/24	-	1xBULK BAG									X
18	ACM-TP01-0.09-0.7m	S	26/03/24	-	1xBULK BAG									X
19	ACM-TP01-0.7-1.3m	S	26/03/24	-	1xBULK BAG									X
20	A-TP05-0.4-0.9m	S	26/03/24	-	1xBULK BAG				X					X
21	A-TP05-0.05-0.4m	S	26/03/24	-	1xBULK BAG									X

Subcon forward Lab / Split WO
Lab / Analysis: Newcastle - Asbestos, Fa
Organised By / Date: Eurofins - Coal Ta
Relinquished By / Date: Eurofins, QC20
2024 03 26
Connote / Courier:
WO No:
Attached Py PO / Internal Sheet:

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD O
Name:	Date:	Name: Sharlene Santos	Date: 4/4/24	Name: Wins	Date: 27/3/24	Con' Note No:
Of:	Time:	Of: S.S. AECOM	Time: 5:35pm	Of: AES	Time: 2011	Transport Co:

Environmental Division
Sydney
Work Order Reference
ES2410587

Telephone : + 61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

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1084484

1084484

PAGE 2

AECOM

Q4AN(EV)-007-FM1

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: GEOTECH TEAM	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68: (Eric) PHONE:	
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		HOLD
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	
22 20240326	ATP05 -0.9-1.2m	S	26/03/24	5	1x BULKBAG		X

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: WILLS	Date: 27/3/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: AG	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
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COC Page 2 of 3

ANZ

FQM - Generic Chain of Custody Form

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: Eric Seritas	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.seritas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

	SAMPLE INFORMATION (note: S = Soil, W=Water)				CONTAINER INFORMATION		ASS Test AP	TRH/BTEXN PAH/8 Metals	PHENOLS	CHCs	C6-C9	BTEXN							HOLD	
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
23	BH28_0.3-0.4	S	26/3	PM	J, ZB	1,1	X	X	X	X										
24	-0.8-0.9																		X	
25	-1.7-1.8																		X	
26	-2.8-2.9							X	X	X										
27	BH28(B)-0.8-0.9																		X	
28	BH29_0.4-0.5						X	X	X	X										
29	-1.2-1.3																		X	
30	-1.7-1.8							X	X	X										
31	-2.8-2.9																		X	
32	QC100-20240326							X												
FW 0	QC200-20240326							X												→ QC 200 to be
33	QC300-20240326	W			V, A6, P	2,1,1		X												sent to
34	TRIP BLANK	S	Lab prepared		J	1					X									ENVIROLABS
35	TRIP SPIKE					1					X	X								
36	Trip Control Spike																			

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: Eric Seritas	Date: 27/3/24	Name:	Date:	Name: WOOS	Date: 27/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: ALS	Time: 2011	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

COC Page 3 of 3

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Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Kate McGrath
Project name:	Not provided
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 4, 2024 3:35 PM
Eurofins reference	1084484

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 5.5 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Kate McGrath - kate.mcgrath@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

Global Leader - Results you can trust

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
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NZBN: 9429046024954

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Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Order No.:
Report #: 1084484
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Kate McGrath

Project Name:
Project ID: 60709736-CDRL 1100

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	QC200_20240326	Mar 26, 2024		Soil	S24-Ap0010434	X	X
Test Counts						1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1084489-S**
Project name
Project ID 60709736-CDRL 1100
Received Date Apr 04, 2024

Client Sample ID			**QC200_20240321**	**QC200_20240322**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S24-Ap0010490**	**S24-Ap0010491**
Date Sampled			**Mar 21, 2024**	**Mar 22, 2024**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	94
TRH C29-C36	50	mg/kg	< 50	73
TRH C10-C36 (Total)	50	mg/kg	< 50	167
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	150
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	150
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	87	117
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	1.2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.7
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	0.8
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.9
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	0.8
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.1

Client Sample ID			QC200_20240321	QC200_20240322
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ap0010490	S24-Ap0010491
Date Sampled			Mar 21, 2024	Mar 22, 2024
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Chrysene	0.5	mg/kg	< 0.5	1.2
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	1.7
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	0.5
Pyrene	0.5	mg/kg	< 0.5	1.8
Total PAH*	0.5	mg/kg	< 0.5	8.8
2-Fluorobiphenyl (surr.)	1	%	64	123
p-Terphenyl-d14 (surr.)	1	%	77	148
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 1
Total cresols*	0.5	mg/kg	< 0.5	< 1
4-Nitrophenol	5	mg/kg	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	1.2
Phenol-d6 (surr.)	1	%	68	95
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20
Heavy Metals				
Arsenic	2	mg/kg	12	5.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	9.0	12
Copper	5	mg/kg	< 5	6.6
Lead	5	mg/kg	11	13
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	16	17
Sample Properties				
% Moisture	1	%	13	16

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Apr 10, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 08, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Apr 05, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name:
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084489
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Phenols (Speciated)	Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QC200_20240321	Mar 21, 2024		Soil	S24-Ap0010490		X	X
2	QC200_20240322	Mar 22, 2024		Soil	S24-Ap0010491	X	X	X
Test Counts						1	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	119			70-130	Pass	
TRH C10-C14	%	82			70-130	Pass	
TRH C6-C10	%	121			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	125			70-130	Pass	
Toluene	%	118			70-130	Pass	
Ethylbenzene	%	110			70-130	Pass	
m&p-Xylenes	%	109			70-130	Pass	
o-Xylene	%	116			70-130	Pass	
Xylenes - Total*	%	111			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	125			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	92			70-130	Pass	
Benz(a)anthracene	%	93			70-130	Pass	
Benzo(a)pyrene	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	%	92			70-130	Pass	
Benzo(g.h.i)perylene	%	94			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	91			70-130	Pass	
Fluoranthene	%	97			70-130	Pass	
Fluorene	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	94			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	94			70-130	Pass	
Pyrene	%	98			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	91			25-140	Pass	
2.4-Dichlorophenol	%	89			25-140	Pass	
2.4.5-Trichlorophenol	%	87			25-140	Pass	
2.4.6-Trichlorophenol	%	93			25-140	Pass	
2.6-Dichlorophenol	%	90			25-140	Pass	
4-Chloro-3-methylphenol	%	95			25-140	Pass	
Pentachlorophenol	%	78			25-140	Pass	
Tetrachlorophenols - Total	%	85			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	75			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	78			25-140	Pass	
2-Nitrophenol	%	84			25-140	Pass	
2.4-Dimethylphenol	%	94			25-140	Pass	
2.4-Dinitrophenol	%	71			25-140	Pass	
2-Methylphenol (o-Cresol)	%	87			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	92			25-140	Pass	
4-Nitrophenol	%	77			25-140	Pass	
Dinoseb	%	82			25-140	Pass	
Phenol	%	88			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	89			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	101			80-120	Pass	
Mercury	%	103			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	102			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0015971	NCP	%	104			70-130	Pass	
TRH C10-C14	N24-Ap0006943	NCP	%	83			70-130	Pass	
TRH C6-C10	S24-Ap0015971	NCP	%	103			70-130	Pass	
TRH >C10-C16	N24-Ap0006943	NCP	%	81			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0015971	NCP	%	100			70-130	Pass	
Toluene	S24-Ap0015971	NCP	%	103			70-130	Pass	
Ethylbenzene	S24-Ap0015971	NCP	%	95			70-130	Pass	
m&p-Xylenes	S24-Ap0015971	NCP	%	97			70-130	Pass	
o-Xylene	S24-Ap0015971	NCP	%	99			70-130	Pass	
Xylenes - Total*	S24-Ap0015971	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0015971	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ap0010434	NCP	%	89			75-125	Pass	
Cadmium	S24-Ap0010434	NCP	%	98			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium	S24-Ap0010434	NCP	%	92			75-125	Pass	
Copper	S24-Ap0010434	NCP	%	100			75-125	Pass	
Lead	S24-Ap0010434	NCP	%	99			75-125	Pass	
Mercury	S24-Ap0010434	NCP	%	106			75-125	Pass	
Nickel	S24-Ap0010434	NCP	%	99			75-125	Pass	
Zinc	S24-Ap0010434	NCP	%	93			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S24-Ap0010491	CP	%	99			70-130	Pass	
Acenaphthylene	S24-Ap0010491	CP	%	105			70-130	Pass	
Anthracene	S24-Ap0010491	CP	%	118			70-130	Pass	
Benz(a)anthracene	S24-Ap0010491	CP	%	87			70-130	Pass	
Benzo(a)pyrene	S24-Ap0010491	CP	%	101			70-130	Pass	
Benzo(b&j)fluoranthene	S24-Ap0010491	CP	%	77			70-130	Pass	
Benzo(g.h.i)perylene	S24-Ap0010491	CP	%	101			70-130	Pass	
Benzo(k)fluoranthene	S24-Ap0010491	CP	%	124			70-130	Pass	
Chrysene	S24-Ap0010491	CP	%	111			70-130	Pass	
Dibenz(a.h)anthracene	S24-Ap0010491	CP	%	104			70-130	Pass	
Fluoranthene	S24-Ap0010491	CP	%	112			70-130	Pass	
Fluorene	S24-Ap0010491	CP	%	107			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0010491	CP	%	115			70-130	Pass	
Naphthalene	S24-Ap0010491	CP	%	105			70-130	Pass	
Phenanthrene	S24-Ap0010491	CP	%	83			70-130	Pass	
Pyrene	S24-Ap0010491	CP	%	112			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S24-Ap0010491	CP	%	89			30-130	Pass	
2.4-Dichlorophenol	S24-Ap0010491	CP	%	79			30-130	Pass	
2.4.5-Trichlorophenol	S24-Ap0010491	CP	%	90			30-130	Pass	
2.4.6-Trichlorophenol	S24-Ap0010491	CP	%	90			30-130	Pass	
2.6-Dichlorophenol	S24-Ap0010491	CP	%	87			30-130	Pass	
4-Chloro-3-methylphenol	S24-Ap0010491	CP	%	85			30-130	Pass	
Pentachlorophenol	S24-Ap0016056	NCP	%	100			30-130	Pass	
Tetrachlorophenols - Total	S24-Ap0010491	CP	%	77			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Nitrophenol	S24-Ap0010491	CP	%	91			30-130	Pass	
2.4-Dimethylphenol	S24-Ap0010491	CP	%	92			30-130	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0010491	CP	%	95			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0010491	CP	%	87			30-130	Pass	
4-Nitrophenol	S24-Ap0016056	NCP	%	100			30-130	Pass	
Phenol	S24-Ap0010491	CP	%	102			30-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0020698	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0010490	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0010490	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0010490	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	S24-Ap0020698	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0010490	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0010490	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0010490	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0020698	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S24-Ap0020698	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S24-Ap0020698	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S24-Ap0020698	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S24-Ap0020698	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S24-Ap0020698	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0020698	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S24-Ap0013441	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S24-Ap0013441	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S24-Ap0013441	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S24-Ap0013441	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0013441	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
4-Nitrophenol	S24-Ap0013441	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S24-Ap0013441	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S24-Ap0013441	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N24-Ap0006420	NCP	mg/kg	6.4	7.9	20	30%	Pass	
Cadmium	N24-Ap0006420	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	N24-Ap0006420	NCP	mg/kg	12	11	7.6	30%	Pass	
Mercury	N24-Ap0006420	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N24-Ap0006420	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	N24-Ap0006420	NCP	mg/kg	11	10	5.1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0010355	NCP	%	16	13	15	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Nileshni Goundar	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Fadi Soro

From: Loren Schiavon
Sent: Wednesday, 3 April 2024 6:23 PM
To: Samples Sydney
Subject: FW: [EXTERNAL] - RE: - RE: SRN for ALS Workorder : ES2409869 | Your Reference: 60709736 - CDRL 1100

Categories: Fadi

Hi Fadi,

Can we send these two samples to Eurofins for analysis?

Thanks!

ES2409869

^ 010						
010-AA	SOIL	Received	21/03/2024	Soil Glass Jar - Unpreserved	Millilitre (150)	Sydney
^ 036						
036-AA	SOIL	Received	22/03/2024	Soil Glass Jar - Unpreserved	Millilitre (250)	Sydney

Kind regards,

1044489

1044489

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Wednesday, April 3, 2024 1:22 AM
To: Loren Schiavon <loren.schiavon@alsglobal.com>
Cc: Sepan Mahamad <Sepan.Mahamad@alsglobal.com>
Subject: [EXTERNAL] - RE: - RE: SRN for ALS Workorder : ES2409869 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi Loren,

I see that we have two QC200s in this one.

Can you please forward QC200_20240321 and QC200_20240322 samples to Eurofins for the same anaylses?

Thank you

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

Click here to connect with me on LinkedIn

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Level 21, 420 George Street,
Gadigal Land, Sydney 2000
Q410, QVB Post Office, Sydney 2000
T 8934 0000
aecom.com

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From: Loren Schiavon <loren.schiavon@alsglobal.com>
Sent: Tuesday, April 2, 2024 1:57 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Cc: Sepan Mahamad <Sepan.Mahamad@alsglobal.com>
Subject: RE: - RE: SRN for ALS Workorder : ES2409869 | Your Reference: 60709736 - CDRL 1100

Hi Eric,
The lab has already started analysing this sample, so the volatiles would now be compromised. Would you like us to still send it?

Kind regards,

right solutions.
right partner.

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Tuesday, April 2, 2024 6:33 AM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; Sepan Mahamad <Sepan.Mahamad@alsglobal.com>
Subject: [EXTERNAL] - RE: SRN for ALS Workorder : ES2409869 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please forward the QC200_20240322 sample to Eurofins?

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

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Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

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From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Thursday, March 28, 2024 12:00 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: SRN for ALS Workorder : ES2409869 | Your Reference: 60709736 - CDRL 1100

Deliverables for ALS Workorder ES2409869

Project: 60709736 - CDRL 1100

Dear Eric Sertas,

Please find enclosed the following deliverables for **ES2409869**.

- ES2409869_0_SRN_24032811 5914.pdf
- ES2409869_COC.pdf

Report Recipients

- Eric Sertas
  - ES2409869_0_SRN_24032811 5914.pdf (Email)
  - ES2409869_COC.pdf (Email)
- [illegible]
  - ES2409869_0_SRN_24032811 5914.pdf (Email, Email)
  - ES2409869_COC.pdf (Email, Email)

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right solutions
right partner

ANZ

FQM - Generic Chain of Custody Form

Split WO

AECOM

Newcastle - Asbestos / FMT

Q4AN(EV)-007-FM1

Enviro's - Coal Tar

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (Eric) PHONE:	PRIOR: ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO eric.sertta@aecom.com , kate.mcgra[illegible]@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

On Ice

SAMPLE INFORMATION (e.g. S = Soil, W=Water)

CONTAINER INFORMATION

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	ASBESTOS (AS4964)	TRH/BTEXN/PAH/8 METAL	PHENOLS	[illegible]	OCP/OPP/PCB	Cu-Cr	BTEXN	[illegible]	Notes e.g. Highly contaminated samples e.g. "High PAHs expected" Extra volume for QC or trace LORs etc.
1	C-TP03_0.00-0.12	S	25/4/23		1 BS, 1 BPG, 1 BOTTLE		X							X	
2	C-TP03_0.12-0.55	S	"		"									X	
3	C-TP03_0.55-1.30	S	"		"			X	X					X	
4	C-TP03_1.30-2.00	S	"		"			X						X	
5							X								
6								X	X		X				
7														X	
8							X	X							
9								X	X		X				
10								X							
11								X							
12	R.T													X	
13										X					
14														X	
15										X					
16														X	
17														X	
18														X	
19														X	
20										X					
21														X	

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		
Name:	Date:	Name:	Date:	Name: [illegible]	Date: 22.3.23	Con' Note
Of:	Time:	Of:	Time:	Of: [illegible]	Time: 7:20	Transport

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

Environmental Division
Sydney
Work Order Reference
ES2409869

Telephone : +61-2-8784 8555

Additional Sample
TRIP SPIKE-2
TRIP BLANK-2

COC Page 1 of 1

Q4AN(EV)-007-FM1
FQM - Generic Chain of Custody Form (Q4AN(EV)-007-FM1)
Revision 1 June 15, 2016

ANZ

FQM - Generic Chain of Custody Form

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68! (Eric)	PHONE:
PROJECT NUMBER & TASK CO: 60709736 - CDRL 1100	P.O. NO:	EMAIL REPORT TO: eric.seritas@aecom.com kate.mcgra[illegible]@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS - SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated sample
e.g. "High PAHs expected"
Extra volume for QC or trace LOR's etc

ALS ID	SAMPLE ID	MATRIX	DATE	TIME	CONTAINER INFORMATION: Type / Code	Total bottles	ASBESTOS (AP)	TRH/BTEXN/PAH	PHENOLS	OCP/OPP/PCB	COAL TAR	C6 - C9	BTEXN	Lead	8-metals				TCLP	
17	R-BH08_0.0-0.1	S	21/3	PM	J, ZLB	1,1	X	X	X	X		—			X					
23	-0.9-1.0	↓	↓	↓	↓	↓													X	
24	-1.8-2.0	↓	↓	↓	↓	↓													X	
25	QC300_20240322	W	↓	↓	V, AG, P	2,1,1		X							X					
26	BH35_0.3-0.4	S	22/3	AM	J, ZLB	1,1		X	X					X						
27	-0.8-0.9	↓	↓	↓	↓	↓		X	X					X						
28	-1.7-1.8	↓	↓	↓	↓	↓													X	
29	R-BH10_0.1-0.2	↓	↓	↓	↓	↓													X	
30	-0.4-0.5	↓	↓	↓	↓	↓													X	
31	-0.7-0.8	↓	↓	↓	↓	↓													X	
32	-1.7-1.8	↓	↓	↓	↓	↓	X	X	X	X					X					
33	-2.7-2.8	↓	↓	↓	↓	↓													X	
34	R-BH10(B)_0.22	m	↓	↓	J	1					X									
35	QC100-20240322	S	↓	↓	↓	↓		X	X					X						
36	QC200-20240322	↓	↓	↓	↓	↓		X	X					X						
37	TRIP BLANK-1	↓	lab prep.	↓	↓	↓						X								
38	TRIP SPIKE-1	↓	↓	↓	↓	↓						X	X							
39	QC300-20240322	W	22/3	AM	V, AG, P	2,1,1		X							X					
40	TSC-1																			
41	TRIP BLANK-2																			
42	TRIP SPIKE-2																			
43	TSC-2																			

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERITAS	Date: 22/3/24	Name:	Date:	Name: [illegible]	Date: 22/3/24	Con' Note No:
Of:	Time: AM	Of:	Time:	Of: [illegible]	Time: 720	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VS = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
B = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; PF = PFAS Jar **Soil Container Codes:** Jar = Unpreserved glass jar

COC Page 2 of

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Asb)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	Not provided
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 4, 2024 3:35 PM
Eurofins reference	1084489

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 8.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
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WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Auckland (Asb)	Christchurch	Tauranga
35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name:
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084489
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Phenols (Speciated)	Moisture Set	Eurofins Suite B7
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QC200_20240321	Mar 21, 2024		Soil	S24-Ap0010490		X	X
2	QC200_20240322	Mar 22, 2024		Soil	S24-Ap0010491	X	X	X
Test Counts						1	2	2

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1084494-S**
Project name
Project ID 60709736-CDRL 1100
Received Date Apr 04, 2024

Client Sample ID			**QC200_20240324**
Sample Matrix			**Soil**
Eurofins Sample No.			**S24-Ap0010501**
Date Sampled			**Mar 24, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	35
TRH C15-C28	50	mg/kg	290
TRH C29-C36	50	mg/kg	280
TRH C10-C36 (Total)	50	mg/kg	605
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	470
TRH >C34-C40	100	mg/kg	340
TRH >C10-C40 (total)*	100	mg/kg	810
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	2.6
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.9
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	3.1
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.6
Benzo(a)pyrene	0.5	mg/kg	2.0
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.7
Benzo(g.h.i)perylene	0.5	mg/kg	1.3
Benzo(k)fluoranthene	0.5	mg/kg	2.0

Client Sample ID			QC200_20240324
Sample Matrix			Soil
Eurofins Sample No.			S24-Ap0010501
Date Sampled			Mar 24, 2024
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Chrysene	0.5	mg/kg	2.0
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	4.6
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.8
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	1.5
Pyrene	0.5	mg/kg	4.4
Total PAH*	0.5	mg/kg	22
2-Fluorobiphenyl (surr.)	1	%	88
p-Terphenyl-d14 (surr.)	1	%	INT
Chlorinated Hydrocarbons			
1.2-Dichlorobenzene	0.5	mg/kg	< 1
1.2.3-Trichlorobenzene	0.5	mg/kg	< 1
1.2.3.4-Tetrachlorobenzene	0.5	mg/kg	< 1
1.2.3.5-Tetrachlorobenzene	0.5	mg/kg	< 1
1.2.4-Trichlorobenzene	0.5	mg/kg	< 1
1.2.4.5-Tetrachlorobenzene	0.5	mg/kg	< 1
1.3-Dichlorobenzene	0.5	mg/kg	< 1
1.3.5-Trichlorobenzene	0.5	mg/kg	< 1
1.4-Dichlorobenzene	0.5	mg/kg	< 1
Benzal chloride	0.05	mg/kg	< 1
Benzotrichloride	0.05	mg/kg	< 1
Benzyl chloride	0.5	mg/kg	< 1
Hexachlorobenzene	0.5	mg/kg	< 1
Hexachlorobutadiene	0.5	mg/kg	< 1
Hexachlorocyclopentadiene	1	mg/kg	< 1
Hexachloroethane	0.5	mg/kg	< 1
Pentachlorobenzene	0.5	mg/kg	< 1
Tetrachloro-m-xylene (surr.)	1	%	INT
Phenols (Halogenated)			
2-Chlorophenol	0.5	mg/kg	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1
Pentachlorophenol	1	mg/kg	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10
Total Halogenated Phenol*	1	mg/kg	< 1
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5
2-Nitrophenol	1	mg/kg	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 1

Client Sample ID			QC200_20240324
Sample Matrix			Soil
Eurofins Sample No.			S24-Ap0010501
Date Sampled			Mar 24, 2024
Test/Reference	LOR	Unit	
Phenols (non-Halogenated)			
Total cresols*	0.5	mg/kg	< 1
4-Nitrophenol	5	mg/kg	< 5
Dinoseb	20	mg/kg	< 20
Phenol	0.5	mg/kg	< 0.5
Phenol-d6 (surr.)	1	%	75
Total Non-Halogenated Phenol*	20	mg/kg	< 20
Ammonia (as N)	5	mg/kg	< 5
Heavy Metals			
Arsenic	2	mg/kg	8.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	23
Copper	5	mg/kg	23
Lead	5	mg/kg	50
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	77
Sample Properties			
% Moisture	1	%	15
Per- and Polyfluoroalkyl Substances (PFASs) - Short			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10
13C2-6:2 FTSA (surr.)	1	%	97
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5
18O2-PFHxS (surr.)	1	%	96
13C8-PFOS (surr.)	1	%	91
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5
13C8-PFOA (surr.)	1	%	103
Sum (PFHxS + PFOS)*	5	ug/kg	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chlorinated Hydrocarbons	Sydney	Apr 05, 2024	14 Days
- Method: LTM-ORG-2130 PAH by GCMS			
Ammonia (as N)	Sydney	Apr 05, 2024	28 Days
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Sydney	Apr 05, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
% Moisture	Sydney	Apr 05, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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Project Name:
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084494
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Ammonia (as N)	Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	QC200_20240324	Mar 24, 2024		Soil	S24-Ap0010501	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ppm: parts per million
µg/L: micrograms per litre
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit
Colour: Pt-Co Units (CU)

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Benzal chloride	mg/kg	< 0.05			0.05	Pass	
Benzotrichloride	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Ammonia (as N)	mg/kg	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Sum of US EPA PFAS (PFOS + PFOA)*	ug/kg	-			5	N/A	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	99			70-130	Pass	
TRH C10-C14	%	92			70-130	Pass	
TRH C6-C10	%	98			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total*	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	88			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	98			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	97			70-130	Pass	
Benz(a)anthracene	%	102			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	94			70-130	Pass	
Benzo(g.h.i)perylene	%	104			70-130	Pass	
Benzo(k)fluoranthene	%	108			70-130	Pass	
Chrysene	%	106			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	110			70-130	Pass	
Naphthalene	%	99			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	106			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2.4-Trichlorobenzene	%	101			70-130	Pass	
1.4-Dichlorobenzene	%	99			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	84			25-140	Pass	
2.4-Dichlorophenol	%	83			25-140	Pass	
2.4.5-Trichlorophenol	%	77			25-140	Pass	
2.4.6-Trichlorophenol	%	75			25-140	Pass	
2.6-Dichlorophenol	%	90			25-140	Pass	
4-Chloro-3-methylphenol	%	83			25-140	Pass	
Pentachlorophenol	%	71			25-140	Pass	
Tetrachlorophenols - Total	%	79			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	75			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	79			25-140	Pass	
2-Nitrophenol	%	89			25-140	Pass	
2.4-Dimethylphenol	%	88			25-140	Pass	
2.4-Dinitrophenol	%	89			25-140	Pass	
2-Methylphenol (o-Cresol)	%	88			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	88			25-140	Pass	
4-Nitrophenol	%	71			25-140	Pass	
Dinoseb	%	71			25-140	Pass	
Phenol	%	85			25-140	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia (as N)			%	101			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	105			80-120	Pass	
Cadmium			%	107			80-120	Pass	
Chromium			%	112			80-120	Pass	
Copper			%	112			80-120	Pass	
Lead			%	115			80-120	Pass	
Mercury			%	113			80-120	Pass	
Nickel			%	112			80-120	Pass	
Zinc			%	110			80-120	Pass	
LCS - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	102			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	106			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0012697	NCP	%	83			70-130	Pass	
TRH C10-C14	S24-Ap0008519	NCP	%	89			70-130	Pass	
TRH C6-C10	S24-Ap0012697	NCP	%	79			70-130	Pass	
TRH >C10-C16	S24-Ap0008519	NCP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0012697	NCP	%	95			70-130	Pass	
Toluene	S24-Ap0012697	NCP	%	94			70-130	Pass	
Ethylbenzene	S24-Ap0012697	NCP	%	88			70-130	Pass	
m&p-Xylenes	S24-Ap0012697	NCP	%	89			70-130	Pass	
o-Xylene	S24-Ap0012697	NCP	%	89			70-130	Pass	
Xylenes - Total*	S24-Ap0012697	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0012697	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N24-Ap0010789	NCP	%	99			70-130	Pass	
Acenaphthylene	N24-Ap0010789	NCP	%	103			70-130	Pass	
Anthracene	N24-Ap0010789	NCP	%	98			70-130	Pass	
Benz(a)anthracene	N24-Ap0010789	NCP	%	99			70-130	Pass	
Benzo(a)pyrene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	N24-Ap0010789	NCP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	N24-Ap0010789	NCP	%	97			70-130	Pass	
Benzo(k)fluoranthene	N24-Ap0010789	NCP	%	110			70-130	Pass	
Chrysene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Dibenz(a.h)anthracene	N24-Ap0010789	NCP	%	102			70-130	Pass	
Fluoranthene	N24-Ap0010789	NCP	%	107			70-130	Pass	
Fluorene	N24-Ap0010789	NCP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N24-Ap0010789	NCP	%	109			70-130	Pass	
Naphthalene	N24-Ap0010789	NCP	%	100			70-130	Pass	
Phenanthrene	N24-Ap0010789	NCP	%	103			70-130	Pass	
Pyrene	N24-Ap0010789	NCP	%	109			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chlorinated Hydrocarbons				Result 1					
1.2.4-Trichlorobenzene	S24-Ap0000227	NCP	%	72			70-130	Pass	
1.4-Dichlorobenzene	S24-Ap0000227	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S24-Ap0010491	NCP	%	89			30-130	Pass	
2.4-Dichlorophenol	S24-Ap0010491	NCP	%	79			30-130	Pass	
2.4.5-Trichlorophenol	S24-Ap0010491	NCP	%	90			30-130	Pass	
2.4.6-Trichlorophenol	S24-Ap0010491	NCP	%	90			30-130	Pass	
2.6-Dichlorophenol	S24-Ap0010491	NCP	%	87			30-130	Pass	
4-Chloro-3-methylphenol	S24-Ap0010491	NCP	%	85			30-130	Pass	
Tetrachlorophenols - Total	S24-Ap0010491	NCP	%	77			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S24-Ma0066710	NCP	%	85			30-130	Pass	
2-Nitrophenol	S24-Ap0010491	NCP	%	91			30-130	Pass	
2.4-Dimethylphenol	S24-Ap0013136	NCP	%	86			30-130	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0013136	NCP	%	77			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0013136	NCP	%	90			30-130	Pass	
Dinoseb	S24-Ma0066710	NCP	%	76			30-130	Pass	
Phenol	S24-Ap0010491	NCP	%	102			30-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S24-Ap0010501	CP	%	96			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N24-Ap0006399	NCP	%	100			75-125	Pass	
Cadmium	N24-Ap0006399	NCP	%	100			75-125	Pass	
Chromium	N24-Ap0006399	NCP	%	94			75-125	Pass	
Copper	N24-Ap0006399	NCP	%	106			75-125	Pass	
Lead	N24-Ap0006399	NCP	%	109			75-125	Pass	
Mercury	N24-Ap0006399	NCP	%	105			75-125	Pass	
Nickel	N24-Ap0006399	NCP	%	105			75-125	Pass	
Zinc	N24-Ap0006399	NCP	%	103			75-125	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0010501	CP	%	116			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0010501	CP	%	131			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0010501	CP	%	121			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0010501	CP	%	127			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0014764	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0003169	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	S24-Ap0014764	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0003169	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0003169	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0003169	NCP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0019439	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S24-Ap0019439	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S24-Ap0019439	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S24-Ap0019439	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S24-Ap0019439	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S24-Ap0019439	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0019439	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0013142	NCP	mg/kg	0.6	0.6	3.7	30%	Pass	
Fluorene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0013142	NCP	mg/kg	0.5	0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S24-Ap0013142	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S24-Ap0013142	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	R24-Ma0067454	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	R24-Ma0067454	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S24-Ap0013142	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S24-Ap0013142	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S24-Ap0013142	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S24-Ap0010501	CP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N24-Ap0006422	NCP	mg/kg	4.3	4.0	7.6	30%	Pass	
Cadmium	N24-Ap0006422	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N24-Ap0006422	NCP	mg/kg	10	9.9	1.7	30%	Pass	
Copper	N24-Ap0006422	NCP	mg/kg	7.5	7.2	4.0	30%	Pass	
Lead	N24-Ap0006422	NCP	mg/kg	75	73	3.0	30%	Pass	
Mercury	N24-Ap0006422	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N24-Ap0006422	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	N24-Ap0006422	NCP	mg/kg	44	45	2.4	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0010501	CP	%	15	15	1.9	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0010449	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0010449	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0010449	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0010449	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Nileshni Goundar	Analytical Services Manager
Charl Du Preez	Senior Analyst-Inorganic
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Fadi Soro

From: Loren Schiavon
Sent: Wednesday, 3 April 2024 12:46 AM
To: Samples Sydney
Subject: FW: [EXTERNAL] - RE: SRN for ALS Workorder : ES2409806 | Your Reference: 60709736 - CDRL 1100

Hi Fadi,
Can you please forward sample ES2409806 #9 to Eurofins with a copy of the original COC?
Sydney samples are in trays: S-391/392.
Thanks.

Kind regards,

Loren Schiavon
Client Services Manager, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8529
Loren.Schiavon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

Monday	Tuesday	Wednesday	Thursday	Friday
Office	Office	Office	Office	Office

1084494

1084494

From: Serttas, Eric <Eric.Serttas@aecom.com>
Sent: Tuesday, April 2, 2024 8:26 AM
To: ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>
Cc: Loren Schiavon <loren.schiavon@alsglobal.com>; Sepan Mahamad <Sepan.Mahamad@alsglobal.com>
Subject: [EXTERNAL] - RE: SRN for ALS Workorder : ES2409806 | Your Reference: 60709736 - CDRL 1100

CAUTION: This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hi ALS,

Can you please forward the QC200_20240324 sample to Eurofins please?

Thank you,

Eric Serttas
He / Him

Environmental Engineer, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

AECOM
Level 21, 420 George Street,
Sydney, NSW 2000, Australia
aecom.com

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From: angel-no-reply@alsglobal.com <angel-no-reply@alsglobal.com>
Sent: Tuesday, March 26, 2024 5:08 PM
To: Serttas, Eric <Eric.Serttas@aecom.com>
Subject: SRN for ALS Workorder : ES2409806 | Your Reference: 60709736 - CDRL 1100

Deliverables for ALS Workorder ES2409806

Project: 60709736 - CDRL 1100

Dear Eric Serttas

Please find enclosed the following deliverables for ES2409806

- ES2409806_0_SRN_240326170811.pdf
- ES2409806_COC.pdf

Report Recipients

AECOM

ANZ

FQM - Generic Chain of Custody Form

Q4AN(EV)-007-FM1

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERTTAS	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] Eric PHONE:	ALS
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	Asbestos (A/P)	TRH/BTEXN/PAH/8 metals	PFAS (Short)	Ammonia	Phenols	CHCs	C6-C9	BTEXN	
1	BH26_0.4-0.5	S	24/3	PM	ZLB, J, PF	1,1,1	X								
2	-0.8-0.9							X							
3	-1.1-1.2							X	X	X	X	X			
4	-1.5-1.6							X							
5	-2.4-2.5							X							
6	-3.4-3.5				J	1	X	X							
7	BH26(B)_0.4-0.5				J, PF			X	X	X	X	X			
8	QC100_20240324							X	X	X	X	X			
9	QC200_20240324							X	X	X	X	X			
10	QC300_20240324	W			AG, P, V, PF	1,1,2,2		X					X		
11	TRIP BLANK	S	[illegible] prepared		J	1							X	X	
12	TRIP SPIKE		8.3.24			1									
13	TSC 16		18.3.24												
14	BH26 1.4-1.6		19.3.24		PFAS										

Extra

Received ex BH26 1.2-1.3

Environmental Division
Sydney
Work Order Reference
ES2409806

Telephone +61-2-8784 8555

RELINQUISHED BY		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name: ERIC SERTTAS	Date: 29/3/24	Name:	Date:	Name: [illegible]	Date: 25/3/24	Con' Note No:
Of: Enfield	Time: AM	Of:	Time:	Of: AS	Time: 2a20	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF = PFAS Jar Soil Container Codes: Jar = Unpreserved glass jar

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

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Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	Not provided
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 4, 2024 3:35 PM
Eurofins reference	1084494

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 8.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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NZBN: 9429046024954

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name:
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1084494
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 4, 2024 3:35 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Ammonia (as N)	Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	QC200_20240324	Mar 24, 2024		Soil	S24-Ap0010501	X	X	X	X	X	X
Test Counts						1	1	1	1	1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1087305-S**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Apr 12, 2024

Client Sample ID			**QC200_20240408**	**QC200_20240407**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S24-Ap0033365**	**S24-Ap0033366**
Date Sampled			**Apr 08, 2024**	**Apr 08, 2024**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	73	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			QC200_20240408	QC200_20240407
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ap0033365	S24-Ap0033366
Date Sampled			Apr 08, 2024	Apr 08, 2024
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	73	84
p-Terphenyl-d14 (surr.)	1	%	71	82
Chlorinated Hydrocarbons				
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.2.3-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.2.3.4-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.2.3.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.2.4.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.3.5-Trichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	< 0.5
Benzal chloride	0.05	mg/kg	< 0.05	< 0.05
Benzotrichloride	0.05	mg/kg	< 0.05	< 0.05
Benzyl chloride	0.5	mg/kg	< 0.5	< 0.5
Hexachlorobenzene	0.5	mg/kg	< 0.5	< 0.5
Hexachlorobutadiene	0.5	mg/kg	< 0.5	< 0.5
Hexachlorocyclopentadiene	1	mg/kg	< 1	< 1
Hexachloroethane	0.5	mg/kg	< 0.5	< 0.5
Pentachlorobenzene	0.5	mg/kg	< 0.5	< 0.5
Tetrachloro-m-xylene (surr.)	1	%	75	87
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4

Client Sample ID			QC200_20240408	QC200_20240407
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S24-Ap0033365**	**S24-Ap0033366**
Date Sampled			**Apr 08, 2024**	**Apr 08, 2024**
Test/Reference	LOR	Unit		
Phenols (non-Halogenated)				
Total cresols*	0.5	mg/kg	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	68	76
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20
Heavy Metals				
Arsenic	2	mg/kg	11	4.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	18	33
Copper	5	mg/kg	14	40
Lead	5	mg/kg	16	33
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	17
Zinc	5	mg/kg	17	43
Sample Properties				
% Moisture	1	%	20	34
Per- and Polyfluoroalkyl Substances (PFASs) - Short				
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10
13C2-6:2 FTSA (surr.)	1	%	90	110
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	< 5
18O2-PFHxS (surr.)	1	%	97	112
13C8-PFOS (surr.)	1	%	118	107
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5
13C8-PFOA (surr.)	1	%	113	112
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chlorinated Hydrocarbons	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH by GCMS			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Sydney	Apr 17, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Phenols (Halogenated)	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Sydney	Apr 15, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
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NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1087305
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 12, 2024 5:00 PM
Due: Apr 19, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240408	Apr 08, 2024		Soil	S24-Ap0033365	X	X	X	X	X
2	QC200_20240407	Apr 08, 2024		Soil	S24-Ap0033366	X	X	X	X	X
Test Counts						2	2	2	2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Benzal chloride	mg/kg	< 0.05			0.05	Pass	
Benzotrichloride	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	97			70-130	Pass	
TRH C10-C14	%	80			70-130	Pass	
TRH C6-C10	%	96			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	94			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	81			70-130	Pass	
m&p-Xylenes	%	90			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total*	%	92			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	102			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	115			70-130	Pass	
Benz(a)anthracene	%	107			70-130	Pass	
Benzo(a)pyrene	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	%	114			70-130	Pass	
Benzo(g.h.i)perylene	%	112			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	110			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	109			70-130	Pass	
Fluorene	%	107			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	106			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
Phenanthrene	%	98			70-130	Pass	
Pyrene	%	109			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2.4-Trichlorobenzene	%	101			70-130	Pass	
1.4-Dichlorobenzene	%	101			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	99			25-140	Pass	
2.4-Dichlorophenol	%	100			25-140	Pass	
2.4.5-Trichlorophenol	%	93			25-140	Pass	
2.4.6-Trichlorophenol	%	93			25-140	Pass	
2.6-Dichlorophenol	%	101			25-140	Pass	
4-Chloro-3-methylphenol	%	100			25-140	Pass	
Pentachlorophenol	%	90			25-140	Pass	
Tetrachlorophenols - Total	%	95			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	104			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	92			25-140	Pass	
2-Nitrophenol	%	98			25-140	Pass	
2.4-Dimethylphenol	%	101			25-140	Pass	
2.4-Dinitrophenol	%	76			25-140	Pass	
2-Methylphenol (o-Cresol)	%	100			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	107			25-140	Pass	
4-Nitrophenol	%	89			25-140	Pass	
Dinoseb	%	106			25-140	Pass	
Phenol	%	103			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium			%	110			80-120	Pass	
Chromium			%	113			80-120	Pass	
Copper			%	111			80-120	Pass	
Lead			%	110			80-120	Pass	
Mercury			%	110			80-120	Pass	
Nickel			%	110			80-120	Pass	
Zinc			%	108			80-120	Pass	
LCS - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short									
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)			%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	74			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	77			50-150	Pass	
Perfluorooctanoic acid (PFOA)			%	75			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	R24-Ap0034341	NCP	%	86			70-130	Pass	
TRH C10-C14	S24-Ap0025145	NCP	%	71			70-130	Pass	
TRH C6-C10	R24-Ap0034341	NCP	%	85			70-130	Pass	
TRH >C10-C16	S24-Ap0025145	NCP	%	71			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	R24-Ap0034341	NCP	%	80			70-130	Pass	
Toluene	R24-Ap0034341	NCP	%	86			70-130	Pass	
Ethylbenzene	R24-Ap0034341	NCP	%	72			70-130	Pass	
m&p-Xylenes	R24-Ap0034341	NCP	%	79			70-130	Pass	
o-Xylene	R24-Ap0034341	NCP	%	81			70-130	Pass	
Xylenes - Total*	R24-Ap0034341	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	R24-Ap0034341	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S24-Ap0046459	NCP	%	116			70-130	Pass	
Acenaphthylene	S24-Ap0046459	NCP	%	108			70-130	Pass	
Anthracene	S24-Ap0046459	NCP	%	100			70-130	Pass	
Benz(a)anthracene	S24-Ap0046459	NCP	%	76			70-130	Pass	
Benzo(a)pyrene	S24-Ap0046459	NCP	%	71			70-130	Pass	
Benzo(b&j)fluoranthene	S24-Ap0046459	NCP	%	82			70-130	Pass	
Benzo(g.h.i)perylene	S24-Ap0046459	NCP	%	79			70-130	Pass	
Benzo(k)fluoranthene	S24-Ap0046459	NCP	%	94			70-130	Pass	
Chrysene	S24-Ap0046459	NCP	%	90			70-130	Pass	
Dibenz(a.h)anthracene	S24-Ap0046459	NCP	%	84			70-130	Pass	
Fluoranthene	S24-Ap0040367	NCP	%	100			70-130	Pass	
Fluorene	S24-Ap0046459	NCP	%	113			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0046459	NCP	%	80			70-130	Pass	
Naphthalene	S24-Ap0046459	NCP	%	116			70-130	Pass	
Phenanthrene	S24-Ap0046459	NCP	%	75			70-130	Pass	
Pyrene	S24-Ap0040367	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0039841	NCP	%	117			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0039841	NCP	%	94			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0039841	NCP	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0039841	NCP	%	98			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ap0033366	CP	%	100			75-125	Pass	
Cadmium	S24-Ap0033366	CP	%	109			75-125	Pass	
Chromium	S24-Ap0033366	CP	%	100			75-125	Pass	
Copper	S24-Ap0033366	CP	%	97			75-125	Pass	
Lead	S24-Ap0033366	CP	%	93			75-125	Pass	
Mercury	S24-Ap0033366	CP	%	106			75-125	Pass	
Nickel	S24-Ap0033366	CP	%	102			75-125	Pass	
Zinc	S24-Ap0033366	CP	%	96			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	R24-Ap0027428	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S24-Ap0040355	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-Ap0040355	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-Ap0040355	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	R24-Ap0027428	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S24-Ap0040355	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-Ap0040355	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-Ap0040355	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	R24-Ap0027428	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	R24-Ap0027428	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	R24-Ap0027428	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	R24-Ap0027428	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	R24-Ap0027428	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	R24-Ap0027428	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	R24-Ap0027428	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0046479	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0046479	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0046479	NCP	mg/kg	< 0.5	0.7	74	30%	Fail	Q15
Benz(a)anthracene	S24-Ap0046479	NCP	mg/kg	1.1	2.2	66	30%	Fail	Q15
Benzo(a)pyrene	S24-Ap0046479	NCP	mg/kg	1.2	2.6	78	30%	Fail	Q15
Benzo(b&j)fluoranthene	S24-Ap0046479	NCP	mg/kg	0.8	2.0	85	30%	Fail	Q15
Benzo(g.h.i)perylene	S24-Ap0046479	NCP	mg/kg	0.7	1.4	79	30%	Fail	Q15
Benzo(k)fluoranthene	S24-Ap0046479	NCP	mg/kg	1.3	2.2	52	30%	Fail	Q15
Chrysene	S24-Ap0046479	NCP	mg/kg	1.3	2.9	74	30%	Fail	Q15
Dibenz(a.h)anthracene	S24-Ap0046479	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0046479	NCP	mg/kg	2.4	4.5	62	30%	Fail	Q15
Fluorene	S24-Ap0046479	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0046479	NCP	mg/kg	0.5	1.2	83	30%	Fail	Q15
Naphthalene	S24-Ap0046479	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0046479	NCP	mg/kg	1.2	1.7	45	30%	Fail	Q15
Pyrene	S24-Ap0046479	NCP	mg/kg	2.5	4.9	65	30%	Fail	Q15

Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzal chloride	S24-Ap0033382	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Benzotrichloride	S24-Ap0033382	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Benzyl chloride	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobutadiene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorocyclopentadiene	S24-Ap0033382	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Hexachloroethane	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pentachlorobenzene	S24-Ap0033382	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0033365	CP	mg/kg	11	4.9	73	30%	Fail	Q15
Cadmium	N24-Ap0038614	NCP	mg/kg	0.5	0.4	24	30%	Pass	
Chromium	S24-Ap0033365	CP	mg/kg	18	18	1.3	30%	Pass	
Copper	S24-Ap0033365	CP	mg/kg	14	14	2.7	30%	Pass	
Lead	S24-Ap0033365	CP	mg/kg	16	15	7.8	30%	Pass	
Mercury	S24-Ap0033365	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S24-Ap0033365	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S24-Ap0033365	CP	mg/kg	17	18	7.7	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0033321	NCP	%	8.2	7.6	7.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0039834	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Adam Bateup	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ANZ

FQM - Generic Chain of Custody Form

Asbestos
ALS / Newcastle AECOM
QC200 20240408 / QC200 20240402 / EUROFINS

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC SERITTAS	Destination Laboratory: ALS
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 681 (Eric)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.seritas@aecom.com , kate.mcgrath@aecom.com	Lab
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected". Extra volume for QC or trace LORs etc.

Relinquished By / Courier:
WO: ES2411530
Attached By PO / Internal Slip:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	ASBESTOS (A/D)	TRH/BTEXN/PAH/Suite	PHENOLS	PFAS (SHORT SUITE)	CHCs	C6-C9	DTEXN	OCP/OPP/PCB	HOLD	Notes
1	ACM-C005_0.4-0.5	S	7/4/24	PM	J, ZLB, PF	1,1,1	X									
2	-0.8-0.9							X	X	X	X					
3	-2.2-2.3							X	X	X	X					
4	QC100_20240407				J	1		X	X	X	X					
—	QC200-20240407					1		X	X	X	X					
5	QC300-20240407	W	7/4/24	PM	V, AG, P, PF	2,1,1,2		X	X	X	X					→ QC200! FORWARD TO EUROFINS
6	BH06-0.4-0.5	S	8/4/24	AM	J, ZLB	1,1	X									
7	-0.8-0.9				J, ZLB, PF	1,1,1		X		X						
8	-2.0-2.5							X	X	X	X					
9	-3.3-3.4															
10	-4.7-4.8				J, PF	1,1									X	
11	QC100_20240408				J	1		X	X	X	X					
—	QC200_20240408							X	X	X	X					
12	TRIP BLANK		lab prep					X	^	X	X					
13	TRIP SPIKE											X				→ QC200! FORWARD TO EUROFINS
14	R-TP12_0.1-0.2		8/4/24	PM	J, ZLB	1,1	X	X				X	X			
15	-1.0-1.1							X						X		PRIORITISE *** EXTRACTION / ANALYSIS DUE TO HOLDING TIME
16	TSC															
17	BH06 2.0-2.8															

extra

RELINQUISHED BY:	RECEIVED BY	RECEIVED BY	METHOD OF SHI
Name: ERIC SERITTAS	Name:	Name: WONG	Con' Note No:
Of:	Of:	Of: ALS	Transport Co:
Date: 8/4/24	Date:	Date: 8/4/24	
Time: PM	Time:	Time: 1927	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar *Soil Container Codes:* Jar = Unpreserved glass jar

Environmental Division
Sydney
Work Order Reference
ES2411530

COC Page 1

1087305

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

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Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 12, 2024 5:00 PM
Eurofins reference	1087305

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 20 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1087305
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 12, 2024 5:00 PM
Due: Apr 19, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240408	Apr 08, 2024		Soil	S24-Ap0033365	X	X	X	X	X
2	QC200_20240407	Apr 08, 2024		Soil	S24-Ap0033366	X	X	X	X	X
Test Counts						2	2	2	2	2

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1087307-S**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Apr 12, 2024

Client Sample ID			**QC200_20240408**	**QC201_20240408**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S24-Ap0033382**	**S24-Ap0033383**
Date Sampled			**Apr 08, 2024**	**Apr 08, 2024**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	101	118
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			QC200_20240408	QC201_20240408
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ap0033382	S24-Ap0033383
Date Sampled			Apr 08, 2024	Apr 08, 2024
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	82	82
p-Terphenyl-d14 (surr.)	1	%	80	70
Chlorinated Hydrocarbons				
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-
1.2.3-Trichlorobenzene	0.5	mg/kg	< 0.5	-
1.2.3.4-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-
1.2.3.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	-
1.2.4.5-Tetrachlorobenzene	0.5	mg/kg	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-
1.3.5-Trichlorobenzene	0.5	mg/kg	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-
Benzal chloride	0.05	mg/kg	< 0.05	-
Benzotrichloride	0.05	mg/kg	< 0.05	-
Benzyl chloride	0.5	mg/kg	< 0.5	-
Hexachlorobenzene	0.5	mg/kg	< 0.5	-
Hexachlorobutadiene	0.5	mg/kg	< 0.5	-
Hexachlorocyclopentadiene	1	mg/kg	< 1	-
Hexachloroethane	0.5	mg/kg	< 0.5	-
Pentachlorobenzene	0.5	mg/kg	< 0.5	-
Tetrachloro-m-xylene (surr.)	1	%	82	-
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-
Pentachlorophenol	1	mg/kg	< 1	-
Tetrachlorophenols - Total	10	mg/kg	< 10	-
Total Halogenated Phenol*	1	mg/kg	< 1	-
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-
2-Nitrophenol	1	mg/kg	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-

Client Sample ID			QC200_20240408	QC201_20240408
Sample Matrix			Soil	Soil
Eurofins Sample No.			S24-Ap0033382	S24-Ap0033383
Date Sampled			Apr 08, 2024	Apr 08, 2024
Test/Reference	LOR	Unit		
Phenols (non-Halogenated)				
Total cresols*	0.5	mg/kg	< 0.5	-
4-Nitrophenol	5	mg/kg	< 5	-
Dinoseb	20	mg/kg	< 20	-
Phenol	0.5	mg/kg	< 0.5	-
Phenol-d6 (surr.)	1	%	72	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-
Heavy Metals				
Arsenic	2	mg/kg	4.8	3.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	18	38
Copper	5	mg/kg	13	22
Lead	5	mg/kg	14	8.7
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	30
Zinc	5	mg/kg	20	27
Sample Properties				
% Moisture	1	%	19	11
Per- and Polyfluoroalkyl Substances (PFASs) - Short				
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	-
13C2-6:2 FTSA (surr.)	1	%	85	-
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	-
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	< 5	-
18O2-PFHxS (surr.)	1	%	109	-
13C8-PFOS (surr.)	1	%	106	-
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	-
13C8-PFOA (surr.)	1	%	114	-
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 17, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chlorinated Hydrocarbons	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH by GCMS			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Sydney	Apr 17, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Phenols (Halogenated)	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 17, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Sydney	Apr 15, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			

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Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1087307
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 12, 2024 5:00 PM
Due: Apr 19, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240408	Apr 08, 2024		Soil	S24-Ap0033382	X	X	X	X	X
2	QC201_20240408	Apr 08, 2024		Soil	S24-Ap0033383			X	X	
Test Counts						1	1	2	2	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.4-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.3.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2.4.5-Tetrachlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Benzal chloride	mg/kg	< 0.05			0.05	Pass	
Benzotrichloride	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	108			70-130	Pass	
TRH C10-C14	%	96			70-130	Pass	
TRH C6-C10	%	110			70-130	Pass	
TRH >C10-C16	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	106			70-130	Pass	
Toluene	%	99			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	112			70-130	Pass	
m&p-Xylenes	%	88			70-130	Pass	
o-Xylene	%	111			70-130	Pass	
Xylenes - Total*	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	97			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	96			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	94			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	91			70-130	Pass	
Benzo(g.h.i)perylene	%	95			70-130	Pass	
Benzo(k)fluoranthene	%	86			70-130	Pass	
Chrysene	%	93			70-130	Pass	
Dibenz(a.h)anthracene	%	90			70-130	Pass	
Fluoranthene	%	94			70-130	Pass	
Fluorene	%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	93			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Chlorinated Hydrocarbons							
1.2.4-Trichlorobenzene	%	101			70-130	Pass	
1.4-Dichlorobenzene	%	101			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	88			25-140	Pass	
2.4-Dichlorophenol	%	103			25-140	Pass	
2.4.5-Trichlorophenol	%	88			25-140	Pass	
2.4.6-Trichlorophenol	%	93			25-140	Pass	
2.6-Dichlorophenol	%	100			25-140	Pass	
4-Chloro-3-methylphenol	%	100			25-140	Pass	
Pentachlorophenol	%	96			25-140	Pass	
Tetrachlorophenols - Total	%	94			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	94			25-140	Pass	
2-Methyl-4.6-dinitrophenol	%	93			25-140	Pass	
2-Nitrophenol	%	102			25-140	Pass	
2.4-Dimethylphenol	%	96			25-140	Pass	
2.4-Dinitrophenol	%	104			25-140	Pass	
2-Methylphenol (o-Cresol)	%	93			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	94			25-140	Pass	
4-Nitrophenol	%	96			25-140	Pass	
Dinoseb	%	95			25-140	Pass	
Phenol	%	92			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	98			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium	%	99			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	101			80-120	Pass	
Mercury	%	101			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	103			80-120	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	77			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	74			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	77			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	75			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	N24-Ap0033249	NCP	%	84			70-130	Pass	
TRH C10-C14	S24-Ap0044473	NCP	%	104			70-130	Pass	
TRH C6-C10	N24-Ap0033249	NCP	%	84			70-130	Pass	
TRH >C10-C16	S24-Ap0044473	NCP	%	94			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N24-Ap0033249	NCP	%	81			70-130	Pass	
Toluene	N24-Ap0033249	NCP	%	87			70-130	Pass	
Ethylbenzene	N24-Ap0033249	NCP	%	87			70-130	Pass	
m&p-Xylenes	N24-Ap0033249	NCP	%	93			70-130	Pass	
o-Xylene	N24-Ap0033249	NCP	%	80			70-130	Pass	
Xylenes - Total*	N24-Ap0033249	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	N24-Ap0033249	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S24-Ap0033366	NCP	%	100			75-125	Pass	
Cadmium	S24-Ap0033366	NCP	%	109			75-125	Pass	
Chromium	S24-Ap0033366	NCP	%	100			75-125	Pass	
Copper	S24-Ap0033366	NCP	%	97			75-125	Pass	
Lead	S24-Ap0033366	NCP	%	93			75-125	Pass	
Mercury	S24-Ap0033366	NCP	%	106			75-125	Pass	
Nickel	S24-Ap0033366	NCP	%	102			75-125	Pass	
Zinc	S24-Ap0033366	NCP	%	96			75-125	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0039841	NCP	%	117			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0039841	NCP	%	94			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0039841	NCP	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0039841	NCP	%	98			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	R24-Ap0034340	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	N24-Ap0033296	NCP	mg/kg	110	130	21	30%	Pass	
TRH C15-C28	N24-Ap0033296	NCP	mg/kg	63	97	42	30%	Fail	Q15
TRH C29-C36	N24-Ap0033296	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C6-C10	R24-Ap0034340	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	N24-Ap0033296	NCP	mg/kg	98	120	23	30%	Pass	
TRH >C16-C34	N24-Ap0033296	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	N24-Ap0033296	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	R24-Ap0034340	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	R24-Ap0034340	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	R24-Ap0034340	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	R24-Ap0034340	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	R24-Ap0034340	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	R24-Ap0034340	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	R24-Ap0034340	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzal chloride	S24-Ap0033382	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Benzotrichloride	S24-Ap0033382	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Benzyl chloride	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
Hexachlorobutadiene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorocyclopentadiene	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Hexachloroethane	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pentachlorobenzene	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S24-Ap0033382	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S24-Ap0033382	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S24-Ap0033382	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S24-Ap0033382	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S24-Ap0033382	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0033382	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0033382	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S24-Ap0033382	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S24-Ap0033382	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S24-Ap0033382	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0033365	NCP	mg/kg	11	4.9	73	30%	Fail	Q15
Cadmium	N24-Ap0038614	NCP	mg/kg	0.5	0.4	24	30%	Pass	
Chromium	S24-Ap0033365	NCP	mg/kg	18	18	1.3	30%	Pass	
Copper	S24-Ap0033365	NCP	mg/kg	14	14	2.7	30%	Pass	
Lead	S24-Ap0033365	NCP	mg/kg	16	15	7.8	30%	Pass	
Mercury	S24-Ap0033365	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S24-Ap0033365	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S24-Ap0033365	NCP	mg/kg	17	18	7.7	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S24-Ap0033321	NCP	%	8.2	7.6	7.0	30%	Pass	
Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0039834	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0039834	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Adam Bateup	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

ANZ

FQM - Generic Chain of Custody Form

Subcon / Forward Lab / Split WO: Asbestos
Lab / Analysis: Newcastle AECOM
Organised By / Date: Enviroks - Coal Tar
Q4AN(EV)-007-FM1

Eurofins - QC200, QC201

CONSULTANT: AECOM	ADDRESS / OFFICE:	SAMPLER: ERIC S. & GEO TEAM	Destination Laboratory
PROJECT MANAGER (PM): James Jentz	SITE: Wyong	MOBILE: +61 419 167 68[illegible] (ERIC)	PHONE:
PROJECT NUMBER & TASK CO 60709736 - CDRL 1100	P.O. NO.:	EMAIL REPORT TO: eric.serttas@aecom.com , kate.mcgrath@aecom.com	Courier / Courier: ALS
RESULTS REQUIRED (Date): Standard TAT	QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)	WO No:

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact. Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Attached By PO / Internal Sheet

Notes: e.g. Highly contaminated sample e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	COAL TAR	TRH/BTEX/PAH/Sulfate	ASBESTOS (ALS)	PHENOLS	CHCs	PFAS (short)	C6-C9	ITEM	HOLD
1	ACM-TP14-0.0-0.2	S	03/04	PM	J	1	X	X	X						
2	-0.6-0.8				J, 2LB, PF	1,1,1		X		X	X	X			
3	-1.5-1.7							X		X	X	X			
4	QC300-20240408	W			P, AG, V, PF	1,1,2,2		X		X	X	X			
5	ACM-TP13-0.2	S			J	1									X
6	-0.3-0.5				J, 2LB, PF	1,1,1									X
7	-0.6-0.8							X							
8	-0.8-1.0														X
9	-1.6-1.7							X	X	X	X	X			
10	-2.8-2.9							X		X	X	X			
11	QC100-20240408				J, PF	1,1		X		X	X	X			
X	QC200-20240408							X		X	X	X			
12	TRIP BLANK		lab pkb		J	1							X		FORWARD TO EUROFINS (QC200)
13	TRIP SPIKE												X	X	
14	QC101-20240408	S	8/4	PM	J	1		X							
X	QC201-20240408							X							FORWARD TO EUROFINS (QC201)
15	ACM-COMP033-05		7/4	PM	J, 2LB	1, 1		X	X	X	X				
16	-0.55-0.65														
17	P-COMP-1.25-1.5														
18	P-COMP-0.3	S	04/04		J	1	X								
19	TRIP CONTROL SPIKE														

Environmental Division
Sydney
Work Order Reference
ES2411748

Telephone : + 61-2-8784 8555

RELINQUISHED BY:		RECEIVED BY		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Name: Wes	Date: 04/4/24	Con' Note No:
Of:	Time:	Of:	Time:	Of: AQ	Time: 1930	Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP – Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag. PF= PFAS Jar *Soil Container Codes:* Jar = Unpreserved glass jar

COC Page 1 of

1087307

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Eurofins Environment Testing Australia Pty Ltd

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+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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NZBN: 9429046024954

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 12, 2024 5:00 PM
Eurofins reference	1087307

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 20 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1087307
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 12, 2024 5:00 PM
Due: Apr 19, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Chlorinated Hydrocarbons	Phenols (Speciated)	Moisture Set	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240408	Apr 08, 2024		Soil	S24-Ap0033382	X	X	X	X	X
2	QC201_20240408	Apr 08, 2024		Soil	S24-Ap0033383			X	X	
Test Counts						1	1	2	2	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1089086-W**
Project name WYONG
Project ID 60709736-CDRL 1100
Received Date Apr 18, 2024

Client Sample ID			**QC200_20240411**
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Ap0048830**
Date Sampled			**Apr 11, 2024**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	116
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001

Client Sample ID			QC200_20240411
Sample Matrix			Water
Eurofins Sample No.			S24-Ap0048830
Date Sampled			Apr 11, 2024
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	51
p-Terphenyl-d14 (surr.)	1	%	140
Chlorinated Hydrocarbons			
1.2-Dichlorobenzene	0.005	mg/L	< 0.005
1.2.3-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.3.4-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.3.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.2.4-Trichlorobenzene	0.005	mg/L	< 0.005
1.2.4.5-Tetrachlorobenzene	0.005	mg/L	< 0.005
1.3-Dichlorobenzene	0.005	mg/L	< 0.005
1.3.5-Trichlorobenzene	0.005	mg/L	< 0.005
1.4-Dichlorobenzene	0.005	mg/L	< 0.005
Benzal chloride	0.0001	mg/L	< 0.0001
Benzotrichloride	0.0001	mg/L	< 0.0001
Benzyl chloride	0.005	mg/L	< 0.005
Hexachlorobenzene	0.005	mg/L	< 0.005
Hexachlorobutadiene	0.005	mg/L	< 0.005
Hexachlorocyclopentadiene	0.005	mg/L	< 0.005
Hexachloroethane	0.005	mg/L	< 0.005
Pentachlorobenzene	0.005	mg/L	< 0.005
Tetrachloro-m-xylene (surr.)	1	%	135
Phenols (Halogenated)			
2-Chlorophenol	0.003	mg/L	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
2-Nitrophenol	0.01	mg/L	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
Total cresols*	0.01	mg/L	< 0.01
4-Nitrophenol	0.03	mg/L	< 0.03
Dinoseb	0.1	mg/L	< 0.1

Client Sample ID			QC200_20240411
Sample Matrix			**Water**
Eurofins Sample No.			**S24-Ap0048830**
Date Sampled			**Apr 11, 2024**
Test/Reference	LOR	Unit	
Phenols (non-Halogenated)			
Phenol	0.003	mg/L	< 0.003
Phenol-d6 (surr.)	1	%	44
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1
Ammonia (as N)	0.01	mg/L	0.10
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.004
Zinc	0.005	mg/L	0.017
Per- and Polyfluoroalkyl Substances (PFASs) - Short			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05
13C2-6:2 FTSA (surr.)	1	%	100
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	< 0.01
18O2-PFHxS (surr.)	1	%	99
13C8-PFOS (surr.)	1	%	97
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	< 0.01
13C8-PFOA (surr.)	1	%	101
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 19, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 19, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chlorinated Hydrocarbons	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2130 PAH by GCMS			
Ammonia (as N)	Sydney	Apr 19, 2024	28 Days
- Method: LTM-INO-4200 Ammonia by Discrete Analyser			
Per- and Polyfluoroalkyl Substances (PFASs) - Short	Sydney	Apr 19, 2024	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Phenols (Halogenated)	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 19, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			

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Eurofins Environment Testing Australia Pty Ltd
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Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.: 60709736 - CDRL 1100
Report #: 1089086
Phone: 02 8934 0000
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Received: Apr 18, 2024 2:56 PM
Due: Apr 26, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Ammonia (as N)	Chlorinated Hydrocarbons	Phenols (Speciated)	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240411	Apr 11, 2024		Water	S24-Ap0048830	X	X	X	X	X
Test Counts						1	1	1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ppm: parts per million
µg/L: micrograms per litre
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit
Colour: Pt-Co Units (CU)

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Chlorinated Hydrocarbons							
1.2-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.4-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.3.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.2.4.5-Tetrachlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.3.5-Trichlorobenzene	mg/L	< 0.005			0.005	Pass	
1.4-Dichlorobenzene	mg/L	< 0.005			0.005	Pass	
Benzal chloride	mg/L	< 0.0001			0.0001	Pass	
Benzotrichloride	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzyl chloride	mg/L	< 0.005			0.005	Pass	
Hexachlorobenzene	mg/L	< 0.005			0.005	Pass	
Hexachlorobutadiene	mg/L	< 0.005			0.005	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.005			0.005	Pass	
Hexachloroethane	mg/L	< 0.005			0.005	Pass	
Pentachlorobenzene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Total Non-Halogenated Phenol*	mg/L	< 0.1			0.1	Pass	
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Sum of US EPA PFAS (PFOS + PFOA)*	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	113			70-130	Pass	
TRH C10-C14	%	103			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	100			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
BTEX							
Benzene	%	114			70-130	Pass	
Toluene	%	106			70-130	Pass	
Ethylbenzene	%	127			70-130	Pass	
m&p-Xylenes	%	130			70-130	Pass	
o-Xylene	%	128			70-130	Pass	
Xylenes - Total*	%	129			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	115			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Pyrene	%	75			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	59			25-140	Pass	
4-Chloro-3-methylphenol	%	58			25-140	Pass	
Pentachlorophenol	%	35			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
Phenol	%	28			25-140	Pass	
LCS - % Recovery							
Ammonia (as N)	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	93			80-120	Pass	
Chromium	%	92			80-120	Pass	
Copper	%	90			80-120	Pass	
Lead	%	91			80-120	Pass	
Mercury	%	89			80-120	Pass	
Nickel	%	90			80-120	Pass	
Zinc	%	90			80-120	Pass	
LCS - % Recovery							
Per- and Polyfluoroalkyl Substances (PFASs) - Short							
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	112			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	107			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	108			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	100			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S24-Ap0052394	NCP	%	108			70-130	Pass	
TRH C10-C14	N24-Ap0051154	NCP	%	81			70-130	Pass	
TRH C6-C10	S24-Ap0052394	NCP	%	111			70-130	Pass	
TRH >C10-C16	N24-Ap0051154	NCP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S24-Ap0052394	NCP	%	113			70-130	Pass	
Toluene	S24-Ap0052394	NCP	%	100			70-130	Pass	
Ethylbenzene	S24-Ap0052394	NCP	%	114			70-130	Pass	
m&p-Xylenes	S24-Ap0052394	NCP	%	121			70-130	Pass	
o-Xylene	S24-Ap0052394	NCP	%	119			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total*	S24-Ap0052394	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S24-Ap0052394	NCP	%	108			70-130	Pass	
Spike - % Recovery									
				Result 1					
Ammonia (as N)	S24-Ap0045258	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1					
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S24-Ap0047528	NCP	%	104			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S24-Ap0047528	NCP	%	85			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S24-Ap0047528	NCP	%	68			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S24-Ap0047528	NCP	%	103			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S24-Ap0038362	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S24-Ap0048830	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C6-C10	S24-Ap0038362	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S24-Ap0048830	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S24-Ap0038362	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S24-Ap0038362	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S24-Ap0038362	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S24-Ap0038362	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S24-Ap0038362	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S24-Ap0038362	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S24-Ap0038362	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S24-Ap0048830	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Chlorinated Hydrocarbons				Result 1	Result 2	RPD			
1.2-Dichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3-Trichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.4-Tetrachlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.3.5-Tetrachlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4-Trichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.2.4.5-Tetrachlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3-Dichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.3.5-Trichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
1.4-Dichlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Benzal chloride	S24-Ap0048830	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzotrichloride	S24-Ap0048830	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Benzyl chloride	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorobutadiene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachlorocyclopentadiene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Hexachloroethane	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Pentachlorobenzene	S24-Ap0048830	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	S24-Ap0048830	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S24-Ap0048830	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	S24-Ap0048830	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	S24-Ap0048830	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	S24-Ap0048830	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S24-Ap0048830	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Nitrophenol	S24-Ap0048830	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S24-Ap0048830	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S24-Ap0048830	CP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	S24-Ap0048830	CP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	S24-Ap0048830	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	S24-Ap0048830	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	S24-Ap0045393	NCP	mg/L	9200	9200	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-Ap0045257	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S24-Ap0045259	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S24-Ap0045257	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S24-Ap0045257	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S24-Ap0045257	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	S24-Ap0045257	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	S24-Ap0045257	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate									
Per- and Polyfluoroalkyl Substances (PFASs) - Short				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	N24-Ap0047359	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	N24-Ap0047359	NCP	ug/L	3.3	3.2	4.3	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	N24-Ap0047359	NCP	ug/L	2.0	1.8	7.5	30%	Pass	
Perfluorooctanoic acid (PFOA)	N24-Ap0047359	NCP	ug/L	0.20	0.19	5.8	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

Authorised by:

Adam Bateup	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Fang Yee Tan	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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ANZ

FQM - Generic Chain of Custody Form

UPDATED COC

AECOM

Q4AN(EV)-007-FM1

CONSULTANT: AECOM | ADDRESS / OFFICE:
PROJECT MANAGER: James Jentz | SITE: Wyong
PROJECT NUMBER & TASK CC 60709736 - CDRL 1100 | PO NO:
RESULTS REQUIRED (Date): Standard TAT | QUOTE NO:

SAMPLER
MOBILE: +61 419 167 68: (Eric) | PHONE:
EMAIL REPORT TO: eric.sertta@aecom.com , kate.mcgrath@aecom.com, fahim.rashid@aecom.com
ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Destination Laboratory: ALS

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: 0 1.3 No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL

SAMPLE INFORMATION (Matrix: S - Soil, W - Water) | CONTAINER INFORMATION

ALS ID	SAMPLE ID	MATRIX	DATE	TIME	Type / Code	Preservative	Water Aggressivity	TRH/ BTEXN/ PAH/ 8 Metals	Cl/SO4	VOC	OCP/PCB	BTEXN	Cr VI	PFAS (short)	Ammonia	Notes e.g. highly contaminated samples e.g. "High PAHs expected" Instructions for QC on trip or rinse blanks etc.
1	BH2	S	11/4/24		V,P6N,?SP		X	X		X				X		
2	BH26							X	X	X				X	X	
3	BH7				A, N, SP			X	X							
4	BH3		12/4/24					X	X	X						
5	BH25							X	X	X						
6	BH27							X	X	X						
7	QC100-20[illegible]41		11/4/24	PM	V,AG,NP,SP			X	X	X				X	X	
8	QC200-20[illegible]41							X	X	X				X	X	
9	QC[illegible]							X	X					X	X	
10	TRIP BLANK															
11	TRIP SPIKE															
12	RBE22 - 15 - 21				RQ											

Subcon / Forward Lab / Split WO: EC200-2404[illegible]
Lab / Analysis: EUROFINS
Organised By / Date:
Relinquished by / Date:

Andrew 2:15 pm

RELINQUISHED BY:		RECEIVED BY:		METHOD OF SHIPMENT
Name: Eric Sertta	Date: 12/4/24	Name:	Date:	Con' Note No:
Of:	Time: pm	Of:	Time:	Transport Co.
		Courier:	Name: NLAS	Date: 2/4/24
			Of: LAB	Time: 2000

WO: ES2412153

Attached By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2412153

Telephone : +61-2-8784 8555

COC Page 1 of 1

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sulfuric Preserved Plastic; A = Unpreserved; AP - Airfreight Unpreserved Plastic.
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved, Amber Glass. H = HCl preserved Plastic; C = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic;
for Analysis: A = Unpreserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; B = NaOH Preserved Bottle; ST = Sterile Bottle; Q = Nutrient Unpreserved Bottle; O = Other Preserved Bottle; F = Filtered Bottle.
Soil Container Codes: Jar - Unpreserved glass jar; PFAS Jar

Page 1 of 1

freezer
1/8/2024
2:50 pm

1089086

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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NATA# 2561
Site# 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
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+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	Apr 18, 2024 2:56 PM
Eurofins reference	1089086

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 1.3 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	NSW 2304
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1089086
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 18, 2024 2:56 PM
Due: Apr 26, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Ammonia (as N)	Chlorinated Hydrocarbons	Phenols (Speciated)	Eurofins Suite B7	Per- and Polyfluoroalkyl Substances (PFASs) - Short
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240411	Apr 11, 2024		Water	S24-Ap0048830	X	X	X	X	X
Test Counts						1	1	1	1	1

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1091616-TO**
Project name WYONG-TRNSW
Project ID 60709736/CDRC1100
Received Date Apr 29, 2024

Client Sample ID			**SV4_20240423**	**SV2_20240423**	**QC100_20240423**
Sample Matrix			**1L Passivated Canister**	**1L Passivated Canister**	**1L Passivated Canister**
Eurofins Sample No.			**B24-Ap0071317**	**B24-Ap0071318**	**B24-Ap0071319**
Date Sampled			**Apr 23, 2024**	**Apr 23, 2024**	**Apr 23, 2024**
Receipt Vac./Pressure (inHg)			**6.0**	**0.5**	**0.6**
Final Pressure (psi)			**15**	**15**	**15**
Test/Reference	LOR	Unit			
Dilution Factor	0.1		2.6	2.1	2.1
US EPA Compendium Methods TO-15					
1.1-Dichloroethane	2	ug/m3	< 5	< 4	< 4
1.1-Dichloroethene	2	ug/m3	< 5	< 4	< 4
1.1.1-Trichloroethane	2.7	ug/m3	< 7	< 6	< 6
1.1.2-Trichloroethane	2.7	ug/m3	< 7	< 6	< 6
1.1.2.2-Tetrachloroethane	3.4	ug/m3	< 9	< 7	< 7
1.2-Dibromoethane (EDB)	3.6	ug/m3	< 9	< 8	< 8
1.2-Dichlorobenzene	3	ug/m3	< 8	< 6	< 6
1.2-Dichloroethane	2	ug/m3	< 5	< 4	< 4
1.2-Dichloropropane	2.3	ug/m3	< 6	< 5	< 5
1.2.4-Trichlorobenzene	15	ug/m3	< 39	< 32	< 32
1.2.4-Trimethylbenzene	2.5	ug/m3	250	30	11
1.3-Butadiene	2.2	ug/m3	< 6	< 5	< 5
1.3-Dichlorobenzene	3	ug/m3	< 8	< 6	< 6
1.3.5-Trimethylbenzene	2.5	ug/m3	93	12	5.4
1.4-Dichlorobenzene	3	ug/m3	< 8	< 6	< 6
1.4-Dioxane	7.2	ug/m3	< 19	< 15	< 15
2-Butanone (Methyl Ethyl Ketone)	5.9	ug/m3	< 15	< 12	< 12
2-Hexanone	8.2	ug/m3	< 21	< 17	< 17
2.2.4-Trimethylpentane	9.3	ug/m3	190	< 20	< 20
3-Chloropropene	1.6	ug/m3	< 4	< 3	< 3
4-Ethyltoluene	2.5	ug/m3	170	18	6.6
4-Methyl-2-Pentanone (MIBK)	2.1	ug/m3	< 5	< 4	< 4
Acetone	16.6	ug/m3	59	68	53
Benzene	1.6	ug/m3	30	< 3	< 3
Bromodichloromethane	3.4	ug/m3	< 9	< 7	< 7
Bromoform	5.2	ug/m3	< 14	< 11	< 11
Bromomethane	19.4	ug/m3	< 50	< 41	< 41
Carbon Disulfide	15.6	ug/m3	< 41	55	45
Carbon Tetrachloride	3.1	ug/m3	< 8	< 7	< 7

Client Sample ID			SV4_20240423	SV2_20240423	QC100_20240423
Sample Matrix			1L Passivated Canister	1L Passivated Canister	1L Passivated Canister
Eurofins Sample No.			B24-Ap0071317	B24-Ap0071318	B24-Ap0071319
Date Sampled			Apr 23, 2024	Apr 23, 2024	Apr 23, 2024
Receipt Vac./Pressure (inHg)			6.0	0.5	0.6
Final Pressure (psi)			15	15	15
Test/Reference	LOR	Unit			
US EPA Compendium Methods TO-15					
Chlorobenzene	2.3	ug/m3	< 6	< 5	< 5
Chloroethane	5.3	ug/m3	< 14	< 11	< 11
Chloroform	2.4	ug/m3	< 6	< 5	< 5
Chloromethane	10.3	ug/m3	< 27	< 22	< 22
Chlorotoluene (Benzyl Chloride)	2.6	ug/m3	< 7	< 5	< 5
cis-1.2-Dichloroethene	2	ug/m3	< 5	< 4	< 4
cis-1.3-Dichloropropene	2.3	ug/m3	< 6	< 5	< 5
Cyclohexane	3.5	ug/m3	20	50	43
Dibromochloromethane	4.3	ug/m3	< 11	< 9	< 9
Methylene Chloride	17.4	ug/m3	< 45	< 37	< 37
Ethanol	9.4	ug/m3	< 24	< 20	< 20
Ethylbenzene	2.2	ug/m3	140	30	17
Freon 11 (Trichlorofluoromethane)	2.8	ug/m3	< 7	< 6	< 6
Freon 113 (Trichlorotrifluoroethane)	3.8	ug/m3	< 10	< 8	< 8
Freon 114	3.5	ug/m3	< 9	< 7	< 7
Freon 12 (Dichlorodifluoromethane)	2.5	ug/m3	< 6	< 5	< 5
Heptane	2.1	ug/m3	77	69	60
Hexachlorobutadiene	21.3	ug/m3	< 55	< 45	< 45
Hexane	5	ug/m3	61	94	81
Isopropanol	50	ug/m3	18000	940	810
m.p-Xylene	4.4	ug/m3	680	130	45
Xylenes - Total*	6.6	ug/m3	950	200	79
Methyl t-Butyl Ether (MTBE)	7.2	ug/m3	< 19	< 15	< 15
Naphthalene	10.5	ug/m3	< 27	< 22	< 22
o-Xylene	2.2	ug/m3	270	65	34
Propylene	8.6	ug/m3	300	< 18	< 18
Styrene	2.1	ug/m3	< 5	< 4	< 4
Tetrachloroethene	3.4	ug/m3	< 9	< 7	< 7
Tetrahydrofuran	1.5	ug/m3	< 4	< 3	< 3
Toluene	7.5	ug/m3	460	79	20
trans-1.2-Dichloroethene	2	ug/m3	< 5	< 4	< 4
trans-1.3-Dichloropropene	2.3	ug/m3	< 6	< 5	< 5
Trichloroethene	2.7	ug/m3	< 7	< 6	< 6
Vinyl Acetate	7.0	ug/m3	< 18	< 15	< 15
Vinyl Chloride	2.5	ug/m3	< 6	< 5	< 5
4-Bromofluorobenzene (surr.)	1	%	100	101	102
ASTM D1945/D1946					
1-Butene	0.03	mol %	< 0.08	< 0.06	< 0.06
1-Pentene	0.01	mol %	< 0.03	< 0.02	< 0.02
1.3-Butadiene	0.03	mol %	< 0.08	< 0.06	< 0.06
2-Methyl-2-Butene	0.01	mol %	< 0.03	< 0.02	< 0.02
Acetylene	0.01	mol %	< 0.03	< 0.02	< 0.02
Carbon Dioxide	0.03	mol %	20	12	12
Carbon Monoxide	0.02	mol %	< 0.05	< 0.04	< 0.04
cis-2-Pentene	0.01	mol %	< 0.03	< 0.02	< 0.02

Client Sample ID			SV4_20240423	SV2_20240423	QC100_20240423
Sample Matrix			**1L Passivated Canister**	**1L Passivated Canister**	**1L Passivated Canister**
Eurofins Sample No.			**B24-Ap0071317**	**B24-Ap0071318**	**B24-Ap0071319**
Date Sampled			**Apr 23, 2024**	**Apr 23, 2024**	**Apr 23, 2024**
Receipt Vac./Pressure (inHg)			**6.0**	**0.5**	**0.6**
Final Pressure (psi)			**15**	**15**	**15**
Test/Reference	LOR	Unit			
ASTM D1945/D1946					
Ethane	0.04	mol %	< 0.1	< 0.08	< 0.08
Ethene	0.02	mol %	< 0.05	< 0.04	< 0.04
Helium	0.05	mol %	< 0.13	< 0.1	< 0.1
Hydrogen	0.03	mol %	< 0.08	< 0.06	< 0.06
Isobutane	0.03	mol %	< 0.08	< 0.06	< 0.06
Isobutylene	0.03	mol %	< 0.08	< 0.06	< 0.06
Isopentane	0.01	mol %	< 0.03	< 0.02	< 0.02
Methane	0.05	mol %	1.5	37	37
Methyl Acetylene	0.01	mol %	< 0.03	< 0.02	< 0.02
n-Butane	0.03	mol %	< 0.08	< 0.06	< 0.06
n-Pentane	0.01	mol %	< 0.03	< 0.02	< 0.02
Nitrogen	0.1	mol %	77	47	47
Oxygen + Argon	0.1	mol %	1.8	4.1	4.1
Propadiene	0.01	mol %	< 0.03	< 0.02	< 0.02
Propane	0.02	mol %	< 0.05	< 0.04	< 0.04
Propylene	0.01	mol %	< 0.03	< 0.02	< 0.02
trans-2-Butene	0.03	mol %	< 0.08	< 0.06	< 0.06
trans-2-Pentene	0.01	mol %	< 0.03	< 0.02	< 0.02
CRC CARE TR 23 PVI					
>C6-C10	100	ug/m3	9000	11000	11000
>C6-C10 TRH minus BTEX (F1)	100	ug/m3	7500	11000	11000
>C10-C12 minus Naphthalene (mod F2)	100	ug/m3	1100	530	420
>C10-C12	100	ug/m3	1100	530	420

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Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
US EPA Compendium Methods TO-15	Brisbane	Apr 29, 2024	30 Days
- Method: SOP #6 Analysis of Volatile Organic Compounds in Summa Polished Canisters EPA Method TO-15 And Modified EPA Method TO-14A			
ASTM D1945/D1946	Brisbane	Apr 29, 2024	30 Days
- Method: SOP #8 Analysis of Oxygen, Nitrogen, Methane, Ethane, Ethene, Carbon Monoxide, Carbon Dioxide, Hydrogen and NMOC by Modified ASTM Method D1946			
CRC CARE TR 23 PVI	Brisbane	Apr 29, 2024	0 Day
- Method: SOP #111 TPH, NMOC, and TVH Hydrocarbon Fractionation Calculations from EPA Methods TO-14A/TO-15			

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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Project Name: WYONG-TRNSW
Project ID: 60709736/CDRC1100

Order No.: 60709736/CDRC1100
Report #: 1091616
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 29, 2024 10:00 AM
Due: May 7, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Canister Certification and Supply fee	Dilution Factor	Final Pressure (psi)	Receipt Vac./Pressure (in Hg)	AirToxics Extended Suite 1: US EPA Compendium Methods TO-14a TO-15/CRC
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SV4_20240423	Apr 23, 2024	9:45PM	1L Passivated Canister	B24-Ap0071317	X	X	X	X	X
2	SV2_20240423	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071318	X	X	X	X	X
3	QC100_20240423	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071319	X	X	X	X	X
4	1L0179	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071320	X				
Test Counts						4	3	3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. Dilutions are performed on samples due to the presence of high level target species or the presence of high level non-target species.
3. Results are uncorrected for surrogate recoveries.
4. All QC limit exceedances and affected sample results are noted by flags. Each qualifying flag is defined below in section entitled 'Definition of Data Qualifying Flags' and additionally on individual sample results (where relevant).
5. "100% certification" is defined as evaluating the sampling system with humid zero air/N2 and humid calibration gases that pass through all active components of the sampling system. The system is "100% certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.
6. The conversion equation from ppbv to g/m3 uses a temperature of 25 °C and an ambient sea level atmospheric pressure of 1 atmosphere (101.325 kPa) is assumed.
7. All canister samples are only analysed once temperature equilibrium with the laboratory has been achieved.
8. Safe Sampling Volume (SSV) - calculated by taking two-thirds of the breakthrough volume (direct method) and Appendix 1 of Method T0-17.
9. Samples were analysed on an 'as received' basis.
10. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
11. This report replaces any interim results previously issued.

Definition of Data Qualifying Flags

Qualifiers may have been used on the data analysis sheets and indicates as follows:

A01 Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

A02 Estimated value.

A03 Exceeds instrument calibration range.

A04 Saturated peak.

A05 Exceeds quality control limits.

A06 Compound analysed for but not detected above the Limit of Reporting (LOR). See data page for project specific U-flag definition.

A07 Non-detected compound associated with low bias in the CCV.

A08 The identification is based on presumptive evidence.

A09 SSV has been exceeded for this compound. It is likely that this compound has been underestimated.

A10 LORs cited do not take into account sample dilution due to canister pressurisation.

A11 Naphthalene elutes outside the >C10-C12 range on the system used for sample analysis. As a result, >C10-C12 TRH value is equivalent to the modified F2 value.

Holding Times

Under conditions of normal usage for sampling ambient air, most Volatile Organic Compounds (VOCs) can be recovered from canisters near their original concentrations after storage times of up to thirty days. For thermal desorption tubes (TDT) samples should be refrigerated at <4°C in a clean environment during storage and analysed within 30 days of sample collection (within one week for limonene, carene, bis-chloromethyl ether and labile sulfur or nitrogen containing volatiles).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

ppbv: parts per billion by volume

ug/m3: micrograms per cubic metre

kPa: kilopascal

psig: pounds per square inch gauge

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
ASTM D1945/D1946							
1-Butene	mol %	< 0.03			0.03	Pass	
1-Pentene	mol %	< 0.01			0.01	Pass	
1.3-Butadiene	mol %	< 0.03			0.03	Pass	
2-Methyl-2-Butene	mol %	< 0.01			0.01	Pass	
Acetylene	mol %	< 0.01			0.01	Pass	
Carbon Dioxide	mol %	< 0.03			0.03	Pass	
Carbon Monoxide	mol %	< 0.02			0.02	Pass	
cis-2-Pentene	mol %	< 0.01			0.01	Pass	
Ethane	mol %	< 0.04			0.04	Pass	
Ethene	mol %	< 0.02			0.02	Pass	
Helium	mol %	< 0.05			0.05	Pass	
Hydrogen	mol %	< 0.03			0.03	Pass	
Isobutane	mol %	< 0.03			0.03	Pass	
Isobutylene	mol %	< 0.03			0.03	Pass	
Isopentane	mol %	< 0.01			0.01	Pass	
Methane	mol %	< 0.05			0.05	Pass	
Methyl Acetylene	mol %	< 0.01			0.01	Pass	
n-Butane	mol %	< 0.03			0.03	Pass	
n-Pentane	mol %	< 0.01			0.01	Pass	
Oxygen + Argon	mol %	< 0.1			0.1	Pass	
Propadiene	mol %	< 0.01			0.01	Pass	
Propane	mol %	< 0.02			0.02	Pass	
Propylene	mol %	< 0.01			0.01	Pass	
trans-2-Butene	mol %	< 0.03			0.03	Pass	
trans-2-Pentene	mol %	< 0.01			0.01	Pass	
Method Blank							
US EPA Compendium Methods TO-15							
1.1-Dichloroethane	ug/m3	< 2			2	Pass	
1.1-Dichloroethene	ug/m3	< 2			2	Pass	
1.1.1-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2.2-Tetrachloroethane	ug/m3	< 3.4			3.4	Pass	
1.2-Dibromoethane (EDB)	ug/m3	< 3.6			3.6	Pass	
1.2-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.2-Dichloroethane	ug/m3	< 2			2	Pass	
1.2-Dichloropropane	ug/m3	< 2.3			2.3	Pass	
1.2.4-Trichlorobenzene	ug/m3	< 15			15	Pass	
1.2.4-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.3-Butadiene	ug/m3	< 2.2			2.2	Pass	
1.3-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.3.5-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.4-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.4-Dioxane	ug/m3	< 7.2			7.2	Pass	
2-Butanone (Methyl Ethyl Ketone)	ug/m3	< 5.9			5.9	Pass	
2-Hexanone	ug/m3	< 8.2			8.2	Pass	
2.2.4-Trimethylpentane	ug/m3	< 9.3			9.3	Pass	
3-Chloropropene	ug/m3	< 1.6			1.6	Pass	
4-Ethyltoluene	ug/m3	< 2.5			2.5	Pass	
4-Methyl-2-Pentanone (MIBK)	ug/m3	< 2.1			2.1	Pass	
Acetone	ug/m3	< 16.6			16.6	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzene	ug/m3	< 1.6			1.6	Pass	
Bromodichloromethane	ug/m3	< 3.4			3.4	Pass	
Bromoform	ug/m3	< 5.2			5.2	Pass	
Bromomethane	ug/m3	< 19.4			19.4	Pass	
Carbon Disulfide	ug/m3	< 15.6			15.6	Pass	
Carbon Tetrachloride	ug/m3	< 3.1			3.1	Pass	
Chlorobenzene	ug/m3	< 2.3			2.3	Pass	
Chloroethane	ug/m3	< 5.3			5.3	Pass	
Chloroform	ug/m3	< 2.4			2.4	Pass	
Chloromethane	ug/m3	< 10.3			10.3	Pass	
Chlorotoluene (Benzyl Chloride)	ug/m3	< 2.6			2.6	Pass	
cis-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
cis-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Cyclohexane	ug/m3	< 3.5			3.5	Pass	
Dibromochloromethane	ug/m3	< 4.3			4.3	Pass	
Methylene Chloride	ug/m3	< 17.4			17.4	Pass	
Ethanol	ug/m3	< 9.4			9.4	Pass	
Ethylbenzene	ug/m3	< 2.2			2.2	Pass	
Freon 11 (Trichlorofluoromethane)	ug/m3	< 2.8			2.8	Pass	
Freon 113 (Trichlorotrifluoroethane)	ug/m3	< 3.8			3.8	Pass	
Freon 114	ug/m3	< 3.5			3.5	Pass	
Freon 12 (Dichlorodifluoromethane)	ug/m3	< 2.5			2.5	Pass	
Heptane	ug/m3	< 2.1			2.1	Pass	
Hexachlorobutadiene	ug/m3	< 21.3			21.3	Pass	
Hexane	ug/m3	< 5			5	Pass	
Isopropanol	ug/m3	< 50			50	Pass	
m.p-Xylene	ug/m3	< 4.4			4.4	Pass	
Xylenes - Total*	ug/m3	< 6.6			6.6	Pass	
Methyl t-Butyl Ether (MTBE)	ug/m3	< 7.2			7.2	Pass	
Naphthalene	ug/m3	< 10.5			10.5	Pass	
o-Xylene	ug/m3	< 2.2			2.2	Pass	
Propylene	ug/m3	< 8.6			8.6	Pass	
Styrene	ug/m3	< 2.1			2.1	Pass	
Tetrachloroethene	ug/m3	< 3.4			3.4	Pass	
Tetrahydrofuran	ug/m3	< 1.5			1.5	Pass	
Toluene	ug/m3	< 7.5			7.5	Pass	
trans-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
trans-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Trichloroethene	ug/m3	< 2.7			2.7	Pass	
Vinyl Acetate	ug/m3	< 7			7.0	Pass	
Vinyl Chloride	ug/m3	< 2.5			2.5	Pass	
LCS - % Recovery							
ASTM D1945/D1946							
1-Butene	%	104			70-130	Pass	
1-Pentene	%	105			70-130	Pass	
1.3-Butadiene	%	108			70-130	Pass	
2-Methyl-2-Butene	%	99			70-130	Pass	
Acetylene	%	104			70-130	Pass	
Carbon Dioxide	%	98			70-130	Pass	
Carbon Monoxide	%	125			70-130	Pass	
cis-2-Pentene	%	100			70-130	Pass	
Ethane	%	106			70-130	Pass	
Ethene	%	107			70-130	Pass	
Hydrogen	%	83			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Isobutane	%	106			70-130	Pass	
Isobutylene	%	104			70-130	Pass	
Isopentane	%	103			70-130	Pass	
Methane	%	106			70-130	Pass	
Methyl Acetylene	%	104			70-130	Pass	
n-Butane	%	105			70-130	Pass	
n-Pentane	%	103			70-130	Pass	
Propadiene	%	105			70-130	Pass	
Propane	%	106			70-130	Pass	
Propylene	%	105			70-130	Pass	
trans-2-Butene	%	102			70-130	Pass	
trans-2-Pentene	%	100			70-130	Pass	
LCS - % Recovery							
US EPA Compendium Methods TO-15							
1.1-Dichloroethane	%	101			70-130	Pass	
1.1-Dichloroethene	%	101			70-130	Pass	
1.1.1-Trichloroethane	%	101			70-130	Pass	
1.1.2-Trichloroethane	%	82			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	80			70-130	Pass	
1.2-Dibromoethane (EDB)	%	86			70-130	Pass	
1.2-Dichlorobenzene	%	85			70-130	Pass	
1.2-Dichloroethane	%	101			70-130	Pass	
1.2-Dichloropropane	%	91			70-130	Pass	
1.2.4-Trichlorobenzene	%	107			70-130	Pass	
1.2.4-Trimethylbenzene	%	75			70-130	Pass	
1.3-Butadiene	%	99			70-130	Pass	
1.3-Dichlorobenzene	%	91			70-130	Pass	
1.3.5-Trimethylbenzene	%	82			70-130	Pass	
1.4-Dichlorobenzene	%	82			70-130	Pass	
1.4-Dioxane	%	81			70-130	Pass	
2-Butanone (Methyl Ethyl Ketone)	%	90			70-130	Pass	
2-Hexanone	%	76			70-130	Pass	
2.2.4-Trimethylpentane	%	103			70-130	Pass	
3-Chloropropene	%	99			70-130	Pass	
4-Ethyltoluene	%	81			70-130	Pass	
4-Methyl-2-Pentanone (MIBK)	%	80			70-130	Pass	
Acetone	%	93			70-130	Pass	
Benzene	%	99			70-130	Pass	
Bromodichloromethane	%	100			70-130	Pass	
Bromoform	%	82			70-130	Pass	
Bromomethane	%	111			70-130	Pass	
Carbon Disulfide	%	108			70-130	Pass	
Carbon Tetrachloride	%	101			70-130	Pass	
Chlorobenzene	%	83			70-130	Pass	
Chloroethane	%	105			70-130	Pass	
Chloroform	%	99			70-130	Pass	
Chloromethane	%	102			70-130	Pass	
Chlorotoluene (Benzyl Chloride)	%	93			70-130	Pass	
cis-1.2-Dichloroethene	%	99			70-130	Pass	
cis-1.3-Dichloropropene	%	87			70-130	Pass	
Cyclohexane	%	94			70-130	Pass	
Dibromochloromethane	%	87			70-130	Pass	
Methylene Chloride	%	96			70-130	Pass	
Ethanol	%	78			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	%	84			70-130	Pass	
Freon 11 (Trichlorofluoromethane)	%	101			70-130	Pass	
Freon 113 (Trichlorotrifluoroethane)	%	101			70-130	Pass	
Freon 114	%	103			70-130	Pass	
Freon 12 (Dichlorodifluoromethane)	%	102			70-130	Pass	
Heptane	%	98			70-130	Pass	
Hexachlorobutadiene	%	120			70-130	Pass	
Hexane	%	95			70-130	Pass	
Isopropanol	%	86			70-130	Pass	
m.p-Xylene	%	84			70-130	Pass	
Xylenes - Total*	%	84			70-130	Pass	
Methyl t-Butyl Ether (MTBE)	%	102			70-130	Pass	
Naphthalene	%	97			70-130	Pass	
o-Xylene	%	84			70-130	Pass	
Propylene	%	103			70-130	Pass	
Styrene	%	85			70-130	Pass	
Tetrachloroethene	%	92			70-130	Pass	
Tetrahydrofuran	%	80			70-130	Pass	
Toluene	%	95			70-130	Pass	
trans-1.2-Dichloroethene	%	102			70-130	Pass	
trans-1.3-Dichloropropene	%	87			70-130	Pass	
Trichloroethene	%	97			70-130	Pass	
Vinyl Acetate	%	90			70-130	Pass	
Vinyl Chloride	%	104			70-130	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Adam Bateup	Analytical Services Manager
Jonathon Angell	Senior Analyst-Air



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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SUMMA CANISTER
CHAIN OF CUSTODY RECORD

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Company	AECOM	Project №	60709736 / CORL 1100
Address	Lvl 21, 420 George St. Sydney NSW	Project Name	WYONG - TRNSW
Contact Name	Eric Serfas	Project Manager	James Jentz
Phone №	0419 167 685	EDD Format (EDat, EQuIS etc.)	EDat
Special Direction		Sampler(s)	Eric Serfas
Purchase Order	60709736 / CORL 1100	Handed over by	
Quote ID №		Email for Invoice	
		Email for Results	kate.mcgrath@aecom.com eric.serfas@aecom.com

Required Turnaround Time (TAT)
Default will be 5 days if not ticked.
♦ Surcharge will apply
☐ Overnight (reporting by
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☑ 5 days (Standard)
☐ Other (

№	Client Sample ID	Date	Time	62 VOCs (TO-15)	TRH, F1, mod F2 (TO-15)	VPH aliphatic/aromatic speciation (TO-15)	AT1	ASTM Gas List (D1945/1946)	Helium only (D1946)	Isopropanol	Canister Vacuum/Pressure	Initial	Final	Canister ID (e.g 1L0020 or 6L0020)	Flow Controller ID (e.g FC020 or 000020)	Sample Comments / Dangerous Goods Hazard Warning
1	SV4-20240423	23/4	21:45				X			X		-30	-6	1L0015	000286	
2	SV2_20240423	23-24/4	01:10				X			X		-45	-6	1L0212	000323	
3	QC100-20240423	23-24/4	01:10				X			X		-45	-6	1L0058	000323	
4														1L0015	000355	No analysis required
5																
6																
7																
8																
9																
	Total Counts															

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal

Name: Eric Serfas Signature: [signature] Date: 24/4/24 Time: 12:45

Laboratory Use Only

Received By	Brendan	SYD | BNE | MEL | PER | ADL | NTL | DAR GEX | WOL	Signature	Date: 28/4	Time: 1:10	Temperature	NA
Received By	Danni Cox	SYD | BNE | MEL | PER | ADL | NTL | DAR GEX | WOL	Signature	Date: 29/4	Time: 10:00AM	Report №	1091616

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | Environment Testing Standard Terms and Conditions is available on request

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	WYONG-TRNSW
Project ID:	60709736/CDRC1100
Turnaround time:	5 Day
Date/Time received	Apr 29, 2024 10:00 AM
Eurofins reference	1091616

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
N/A	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: WYONG-TRNSW
Project ID: 60709736/CDRC1100

Order No.: 60709736/CDRC1100
Report #: 1091616
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: Apr 29, 2024 10:00 AM
Due: May 7, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Canister Certification and Supply fee	Dilution Factor	Final Pressure (psi)	Receipt Vac./Pressure (in Hg)	AirToxics Extended Suite 1: US EPA Compendium Methods TO-14a TO-15/CRC
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	SV4_20240423	Apr 23, 2024	9:45PM	1L Passivated Canister	B24-Ap0071317	X	X	X	X	X
2	SV2_20240423	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071318	X	X	X	X	X
3	QC100_20240423	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071319	X	X	X	X	X
4	1L0179	Apr 23, 2024	1:10AM	1L Passivated Canister	B24-Ap0071320	X				
Test Counts						4	3	3	3	3

AECOM Aust Pty Ltd Sydney
Level 21, 420 George St
Sydney
NSW 2000

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Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Eric Serttas**

Report **1096015-L**
Project name ADDITIONAL: WYONG
Project ID 60709736-CDRL 1100
Received Date May 10, 2024

Client Sample ID			**QC200_20240322**	**QC200_20240323**
Sample Matrix			**US Leachate**	**AUS Leachate**
Eurofins Sample No.			**S24-My0030926**	**S24-My0030927**
Date Sampled			**Mar 22, 2024**	**Mar 22, 2024**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Heavy Metals				
Lead	0.01	mg/L	0.14	0.07
Zinc	0.05	mg/L	-	0.62
USA Leaching Procedure				
Leachate Fluid[C01]		comment	1.0	-
pH (initial)	0.1	pH Units	9.6	-
pH (off)	0.1	pH Units	5.1	-
pH (USA HCl addition)	0.1	pH Units	1.9	-
AUS Leaching Procedure				
Leachate Fluid[C01]		comment	-	4.0
pH (initial)	0.1	pH Units	-	6.9
pH (Leachate fluid)	0.1	pH Units	-	6.9
pH (off)	0.1	pH Units	-	6.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	May 15, 2024	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Heavy Metals	Sydney	May 15, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
USA Leaching Procedure	Sydney	May 15, 2024	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
AUS Leaching Procedure	Sydney	May 15, 2024	7 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: ADDITIONAL: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1096015
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: May 10, 2024 11:04 AM
Due: May 17, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Benzo(a)pyrene	Lead	Zinc	AUS Leaching Procedure	USA Leaching Procedure
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240322	Mar 22, 2024		US Leachate	S24-My0030926	X	X			X
2	QC200_20240323	Mar 22, 2024		AUS Leachate	S24-My0030927	X	X	X	X	
Test Counts						2	2	1	1	1

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**ppm:** parts per million
µg/L: micrograms per litre	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	**Colour:** Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Lead	mg/L	< 0.01			0.01	Pass	
Zinc	mg/L	< 0.05			0.05	Pass	
Method Blank							
Heavy Metals							
Lead	mg/L	< 0.01			0.01	Pass	
Zinc	mg/L	< 0.05			0.05	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene	%	110			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Lead	%	96			80-120	Pass	
Zinc	%	95			80-120	Pass	
LCS - % Recovery							
Heavy Metals							
Lead	%	98			80-120	Pass	
Zinc	%	97			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Benzo(a)pyrene	S24-My0030926	CP	%	99			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S24-My0030927	CP	%	114			75-125	Pass	
Zinc	S24-My0030927	CP	%	95			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S24-My0030926	CP	mg/L	0.14	0.14	<1	30%	Pass	
Zinc	S24-My0030926	CP	mg/L	5.6	5.6	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S24-My0030927	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S24-My0030927	CP	mg/L	0.07	0.06	1.8	30%	Pass	
Zinc	S24-My0030927	CP	mg/L	0.62	0.63	1.3	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Nileshni Goundar	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Sample Properties



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Additional Analysis Requests (AECOM Ref: 60709736 / CDRL 1100, Wyong)

Serttas, Eric <Eric.Serttas@aecom.com>

Fri 2024-05-10 10:46 AM

To:Adam Bateup <AdamBateup@eurofins.com>;#AU25_EurofinsEnviroNSW <eurofinsenvironsw@eurofins.com>
Cc:McGrath, Kate <Kate.McGrath@aecom.com>

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins. Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Adam,
Can you please request analysis below on standard TAT;

Lab Ref	Sample ID	TCLP	ASLP
1084238	QC200_20240322	BaP, Lead	Zinc, Lead, BaP

Please use 60709736 / CDRL 1100 as PO.

Thank you,

Eric Serttas
He / Him

Environmental Engineer - Geosciences and Remediation Services, ANZ NAC
M +61 419 167 685
eric.serttas@aecom.com

Click here to connect with me on LinkedIn

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IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	AECOM Aust Pty Ltd Sydney
Contact name:	Eric Serttas
Project name:	ADDITIONAL: WYONG
Project ID:	60709736-CDRL 1100
Turnaround time:	5 Day
Date/Time received	May 10, 2024 11:04 AM
Eurofins reference	1096015

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 14.6 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Adam Bateup on phone : or by email: AdamBateup@eurofins.com

Results will be delivered electronically via email to Eric Serttas - eric.serttas@aecom.com.

Note: A copy of these results will also be delivered to the general AECOM Aust Pty Ltd Sydney email address.

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ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West
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+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	Site# 25079 & 25289

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35 O'Rorke Road	Unit C1/4 Pacific Rise,	43 Detroit Drive	1277 Cameron Road,
Penrose,	Mount Wellington,	Rolleston,	Gate Pa,
Auckland 1061	Auckland 1061	Christchurch 7675	Tauranga 3112
+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402

Company Name: AECOM Aust Pty Ltd Sydney
Address: Level 21, 420 George St
Sydney
NSW 2000

Project Name: ADDITIONAL: WYONG
Project ID: 60709736-CDRL 1100

Order No.:
Report #: 1096015
Phone: 02 8934 0000
Fax: 02 8934 0001

Received: May 10, 2024 11:04 AM
Due: May 17, 2024
Priority: 5 Day
Contact Name: Eric Serttas

Eurofins Analytical Services Manager : Adam Bateup

Sample Detail						Benzo(a)pyrene	Lead	Zinc	AUS Leaching Procedure	USA Leaching Procedure
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	QC200_20240322	Mar 22, 2024		US Leachate	S24-My0030926	X	X			X
2	QC200_20240323	Mar 22, 2024		AUS Leachate	S24-My0030927	X	X	X	X	
Test Counts						2	2	1	1	1

Appendix I

Field sampling records

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FQM - Soil Vapour Bore - Purging Record

Q4AN(EV)-206-FM1

DH: dawn Mok during sample

Project Name:		Client:		PM Name:		Weather:	
Project Number:		Project Location:		Field Staff Name:		Baro Pressure:	
Bore Volume (mL) = (tube length(m) x 15)		Using syringe, aim to purge min1 bore volume. Terminate purge if downhole pressure exceeds -6mmHg during pur				Purge Rate:	

Well Location	Well Depth (m)	Date	PID (ppm)	Minimum Purge Volume mL (1BV)	Syringe Purged Volume	LFG Metre Purge Start Time	Stabilised O_2 (%)	Stabilised CO_2 (%)	Stabilised CH_4 (%)	Purge Duration (min)	Calculated Purge Volume mL	Maximum DH Pressure (mmHg)	Post Sampling O_2 (%)	Post Sampling CO_2 (%)	Post Sampling CH_4 (%)	Post Sampling PID (ppm)
SV4		23/4	2.2ppm		180ml	8:10	0.4	17.8	1.3	2min		-0 -	0.0	17.8	1.4	6
SV2		23/4	6.8ppm		180ml	11:25	0.6	12.3	32.2	3min		- 0 -	0.8	11.8	34.6	1.4

Comments

Note: If other parameters are observed on landfill gas meter (e.g H2S > 0.0) then record here.

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Project Manager Signature _____ Date _____

Distribution: Project Central File

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ANZ

FQM - Soil Vapour Bore - Summa Canister Sample Record

Q4AN(EV)-206-FM2

Project Name:		Client:		PM Name:	
Project Number:		Project Location:		Field Staff Name:	

Date	Well ID	Cannister#	Flow Controller#	Initial Pressure - Gauge (mm Hg)	Passed Shut-in Test?	Time On	Initial Pressure - Field (mm Hg)	Maximum Observed DH Pressure During Sampling (mm Hg)	Final Pressure - Field (mm Hg)	Time Off
23/4	SV4	1L0015	000284		YES	9:20Am	-30HG	0	-5HG	3:45Pm
	SV2	1L0053	000323		YES	11:47Am	-45HG	0	-6HG	1:10Am
	"	1L0212	"			"	"	"	"	"

QAQC Sample Information			Comments
Field Duplicate ID:			

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Project Manager Signature _____ Date _____

Distribution: Project Central File

FQM - Soil Vapour - Leak Detection Record

Project Name:	WYONG - TRUEW	Client:	TRUEW	PM Name:	JAMES DAVIS
Project Number		Project Location:		Field Staff Name:	ERIC SCETTAR

PID

Well Location	Date	Leak Test Start Time	Leak Test End Time	Initial He conc. in chamber (%) ppm	He conc. in sampling line (ppm)				Stabilised He conc. in sampling line (ppm)	Final He conc. in chamber (%)
					Initial	1 min	3 min	5 min		
SV4		8:08		620 ppm	2.8 ppm	2.6 ppm	2.3 ppm	2.2 ppm	2.2 ppm	643.6 ppm
SV2		11:00		620.5 ppm	7.6 ppm	7.0 ppm	7.1 ppm	6.8 ppm	6.8/8.2	644.2 ppm

Comments

Approval and Distribution

Fieldwork Staff Signature — Date

Project Manager Signature — 25/6/24 Date

Distribution: Project Central File

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ANZ

FQM - Groundwater Sampling and Purging Record

RBH7

Q4AN(EV)-405-FM1

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	12/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

Steele Creek 0.08m

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 12/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.805	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4.901	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 1.0	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:55		1.865		0.66	358.7	6.14	-148.2	25.7	light brown cle, mod turb, sulphorous od,
12:57		1.880		0.64	367.4	6.14	-158.8	26.7	
13:00		1.885		0.43	371.1	6.15	-150.3	26.0	
13:07		1.895		0.33	380.6	6.16	-160.7	26.1	
13:11		1.900		0.24	411.0	6.17	-163.2	26.0	
13:15		1.905		0.22	418.8	6.17	-165.6	26.0	
13:18		1.910		0.19	420.3	6.18	-167.7	25.8	
13:21		1.915		0.18	417.6	6.17	-167.1	25.7	
13:24		1.915		0.17	406.6	6.14	-167.2	25.8	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	☐ x 40 mL Vial (HCl)	☐	☐ x 60 mL Ferrous	☐	☐ x 60 mL metals (HNO_3)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		☐ x 40 mL Vial (H_2SO_4)	☐	☐ x 100 mL Amber	☐	☐ x 250 mL Plastic			
		☐ x 20 mL Plastic (PFAS)	☐		☐				

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BH29

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	12/04/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 12/04/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.55m	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 6.235m	Casing Radius (mm):	Corrected Redox: Y / (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 65.5 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
03:15pm		1.16m		0.58	3064	5.71	116.7	23.6	slight sulphur odour, colourless, low to mod rate
03:20pm		1.779m		0.33	2948	5.72	123.9	24.1	turbidity, no sheen, becoming milky
03:25pm		1.925m		0.16	2893	5.71	132.1	24.4	
03:30pm		1.995m		0.07	2897	5.69	143.2	24.5	
03:35pm		2.065m		0.08	2963	5.70	142.6	24.1	
03:40pm		2.134m		0.06	2980	5.69	142.9	24.2	started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected					QA/QC Information	Field Commets
Field Filtered:	**Unfiltered:**	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	/	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	/	x 100 mL Amber	/	x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature	**Date**	**Checker Name and Signature**	**Date**
Project Manager Signature	**Date**	**Distribution:** Project Central File	

ANZ

FQM - Groundwater Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	BH28 12/4/2024
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level: 12/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 0.755 m	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4m	Casing Radius (mm):	Corrected Redox: Y / (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID = 11.7 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity (suspended solids)
2:10pm	250mL	0.83		0.50	2859	6.71	-115.2	22.1	clear, sulphurous odour, low turbidity + soil settlement
2:14pm		0.86		0.19	2915	6.84	-143.2	21.8	no sheen
2:20pm		0.884		0.14	2942	6.69	-162.4	22.2	
2:24pm		0.91		0.07	5383	6.46	-145.2	22.3	
2:30pm		0.934		0.07	4327	6.27	-148.0	22.4	
2:37pm		1.04		0.23	4236	6.12	-66.6	23.1	
2:42pm		1.09		0.09	4069	4.93	-101.5	23.1	
2:47pm		1.134		0.03	4.63	4.78	-102.5	23.2	
2:52pm		1.175		0.01	4.98	4.68	-99.3	23.2	started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected					QA/QC Information	Field Commets
Field Filtered:	**Unfiltered:**	2 x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
		x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — **Distribution:** Project Central File

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FQM - Groundwater Sampling and Purging Record

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Q4AN(EV)-405-FM1

QC100 and QC200

BH26

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	11/04/2024
Client:	TfNSW	Project Location:	Wyopng Wyong NSW	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level: 11/04/2024	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 2.445m	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 10.02m	Casing Radius (mm):	Corrected Redox: Y / (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID = 2.7 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

11:02

stick 0.055

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
11:30 pm	250mL	3.035		1.04	425.7	4.48	72.6	24.1	clear, no odour, low Turbidity, no sheen
11:35 pm		3.18		0.78	422.5	4.49	68.9	24.0	
11:40 pm		3.24		0.79	416.2	4.50	97	24.0	
11:45 pm		3.30		0.75	407.2	4.51	112.2	24.0	
11:50 pm		3.365m		0.74	403.0	4.53	123.1	23.9	
11:55 pm		3.435m		0.65	748	4.53	18.5	23.7	
12:00 pm		3.465m		0.45	751	4.52	9.6	23.6	
12:05 pm		3.53m		0.40	438.8	4.53	3.6	23.8	
12:10 pm		3.565m		0.30	447.2	4.52	-6.8	23.8	
12:15 pm		3.61m		0.2	460.2	4.53	-27.2	23.8	
12:20 pm		3.65m		0.17	459.4	4.53	-24.9	23.8	
12:25 pm		3.705m		0.20	453.6	4.53	-28	23.7	Started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	WTONG TC Upgrade	Project Number:	60729736	PM Name:	James Jentz	Bore ID:	A-BH03A
Client:	TfNSW	Project Location:	WTONG	Fieldwork Staff:	Eric Scottas / Alex To	Sample Date:	11-04-2024

Well Development or Well Sampling Event? (circle)

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 11/04/2024	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow: Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 2.195 m (2:26pm)	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4.17m	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
PID = 0.2 ppm	Key Type (if applicable):	☐ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Stick down: 0.085

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
2:35 pm	500 mL	2.21m		0.85	204	4.79	-117.4	24.9	strong sulphurous odour, low to moderate turbidity, clear, no sheen.
2:40 pm		2.21m		0.26	203.3	5.01	-153.4	24.9	
2:45 pm		2.21m		0.31	115.1	5.06	-142.2	24.7	
2:50 pm		2.21m		0.13	116.1	5.06	-148.3	24.7	
2:55 pm		2.215m		0.09	132.6	5.05	-152.0	24.6	
3:00 pm		2.215m		0.08	160.7	5.04	-155.6	24.6	
3:05 pm		2.215m		0.06	185.0	5.05	-155.6	24.6	
3:10 pm		2.215		0.05	177.2	5.05	-155.8	24.5	
3:15 pm		2.215		0.05	182.6	5.05	-154.2	24.5	started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
				2	x 250mL plastic		(PFAS)		

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — Distribution: Project Central File

ANZ

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

R-BH23

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	11-04-2024
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 11/04/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 10.02m	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 24.07m	Casing Radius (mm):	Corrected Redox: Y / (N)	☐ Disposable	☑ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID = 0 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

2:00pm

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
2:00pm	1	10.02m		1.86	515	5	201.4	22.2	no odour, pale brown, moderate turbidity, no sheen
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic	
			x 20 mL Plastic (PFAS)					

Field Commets

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature — Date: 11/4/24

Checker Name and Signature — Date

Project Manager Signature — Date

Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	BH4 11/04/2024
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 11/04/2024	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.78m (3:08am)	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 5.17m	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				3 Parameters

Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
3:15am	250mL	1.805m		0.4	327.2	4.72	-96.6	23.3	sulphurous odour, yellowish, low turbidity, no sheen
3:20am		1.805m		0.11	329.1	4.69	-114.0	23.8	
3:25am		1.81m		0.19	325.7	4.69	-123.8	24.0	
3:30am		1.805m		0.25	324.4	4.69	-124.9	23.9	
3:35am		1.805m		0.07	323.4	4.68	-126.2	23.8	
3:40am		1.805m		0.07	326.1	4.69	-126.7	23.9	
3:45am		1.805m		0.08	327.8	4.69	-126.7	24.0	started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		2	x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
		2	x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

R-BH08 ~~R-BH08~~

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	1/04/2024
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 1/04/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 2.1m	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 13.85m	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 22.1 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

1:21 am

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
1:32am	250 ml	2.105		0.36	457.6	6.03	-149.1	19.8	yellowish brown, low turbidity, no sheen, strong sulphurous odour
1:37am		2.10		0.32	446.5	6.01	-142.9	19.8	
1:42am		2.10		0.52	228.9	6.01	-84.4	19.8	
1:47am		2.10		0.24	415.8	5.99	-136.5	19.8	
2:07am		2.10		0.44	412.5	5.98	-109.5	20.0	
2:12 am		2.10		0.09	412.1	5.97	-132.9	20.0	
2:17 am		2.105		0.04	413.3	5.97	-145.0	20.1	
2:23am		2.105		0.22	414.4	5.97	-152.3	20.1	
2:28am		2.105		0.19	415.6	5.96	-147.4	20.1	
2:33am		2.105		0.18	414.7	5.96	-160.1	20.1	start sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		2	x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature	1/04/24 Date	Checker Name and Signature	Date
Project Manager Signature	Date	Distribution: Project Central File	

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FQM - Groundwater Sampling and Purging Record

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Q4AN(EV)-405-FM1

PB-BH04 ~~-L-CPT06-~~

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	11/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 11/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 3.03mBTOC	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 16.670mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 1.3ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:10	250mL	3.155		1.14	17107	6.55	-194.7	21.6	-clear odour, low to mod turb, sulphurous od, bbls dr sage dd solids
12:15		3.20		0.45	18525	6.57	-202.2	21.9	
12:20		3.22		0.24	18590	6.58	-203.5	21.9	
12:25		3.265		0.37	18628	6.59	-192.2	21.9	
12:30		3.285		0.12	18633	6.60	-202.8	21.5	
12:35		3.32		0.12	18621	6.60	-203.3	21.5	
12:40		3.345		0.07	18365	6.60	-212.3	21.4	
12:45		3.325		0.07	18652	6.61	-213.8	21.3	start sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

A-BH07

Stick down; 0.09m

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	10/4/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.545mBTOC	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 3.520mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 2.6ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or ~~mg/L~~)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
23:10	500ml	1.550		0.38	227.1	5.48	-158.2	21.5	yellowish clr, low → turbidity, strong rotten (acidic) odour
23:15		1.550		0.12	222.0	5.46	-182.8	21.5	
23:20		1.550		0.31	220.16	5.48	-182.7	21.5	
23:25		1.550		0.13	218.8	5.47	-182.8	21.4	
23:30		1.550		0.11	220.2	5.47	-186.6	21.3	
23:35		1.550		0.09	223.3	8.50	-202.1	21.3	
23:40		1.550		0.07	225.8	8.61	-203.8	21.1	→ started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected					QA/QC Information
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic	
		2	x 20 mL Plastic (PFAS)					

Field Commets

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

~~X~~-BH10

Q4AN(EV)-405-FM1

Stable down: -0.08m

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	10/4/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 4.180 mBTOC	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 17.520 mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ ~~Peristaltic Pump~~ ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 0.0	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
21:45	250ml	4.250		0.40	6052	5.77	168.7	20.4	- clear clr, low to mod turbidity, suspended solids obs, no od
21:50		4.260		0.24	6254	5.81	160.2	20.3	* tubing was placed to 7.2mbtoc* - before purging
21:55		4.275		0.30	6308	5.82	164.4	20.3	
22:00		4.280		0.28	6390	5.85	148.0	20.4	
22:05	350ml	4.300		0.26	3384	5.81	133.4	20.4	→ flow cell frited and its reinstalled
22:10		4.305		0.18	6484	5.83	134.7	20.3	
22:15		4.315		0.07	6885	5.94	133.7	20.4	
22:20		4.320		0.11	6333	5.83	132.1	20.3	
22:25		4.325		0.16	6317	5.83	130.6	20.3	
22:30		4.330		0.10	6330	5.94	128.5	20.3	→ started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	1	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature ____ Date ____ Checker Name and Signature ____ Date ____

Project Manager Signature ____ Date ____ **Distribution:** Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BH30

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	10/4/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

Stick down: 0.1 m

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 1.365mBTOC	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 5.570mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID 16.2 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
20:30	250mL	1.480		0.86	782	6.93	-52.5	24.2	clear dr, mod turb, suspended solids, no od
20:35		1.780		0.20	807	6.86	-44.7	24.8	
20:40		2.000		0.23	798	6.81	-56.0	24.6	
20:45		2.165		0.20	791	6.88	-63.8	24.5	
20:50		2.360		0.18	783	6.83	-66.1	24.5	
20:55		2.500		0.10	773	6.78	-63.2	24.5	→ started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected					QA/QC Information
Field Filtered:	**Unfiltered:**	2 x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)	
metals		x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic	
		2 x 20 mL Plastic (PFAS)					

Field Commets

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Stick down: 0.07m

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	17 BHOC 10/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 7.170 BTOC	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 7.330 BTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 0.7 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
4:45	250mL	7.245		1.15	3942	6.02	142.2	21.3	→ red to brown clr, high turbidity, no odr.
4:50		7.285		1.73	4098	6.05	113.8	21.8	→ light brown clr, mod turbidity, no odr.
4:55		7.340		1.46	4670	6.02	150.0	21.8	
5:00		7.420		1.00	5532	6.01	140.4	21.8	
5:05		7.500							→ lowered the tubing due to low water lvl, clr turned to red brn with high turbidity
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected					QA/QC Information	Field Comments
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

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FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Stick down

Q1m

N H75

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	10/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 0.310 mBTOC	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 3.560 mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 8.3 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters										
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	TDS	Odour, Colour, Turbidity
3:15	250mL	0.320		1.08	13040	5.68	53.1	21.9	9022	yellow/clr, mod turb.
3:20		0.335		0.43	13395	5.55	32.2	22.2	9210	
3:25		0.345		0.28	13550	5.53	-0.4	22.5	9275	
3:30		0.355		0.14	13522	5.53	-26.6	22.3	9282	
3:35		0.360		0.13	13584	5.51	-38.0	22.5	9262	clear in clr,
3:40		0.365		0.40	13511	5.56	-53.5	22.7	9165	
3:45		0.370		0.13	13644	5.56	-77.1	23.2	9197	
3:50		0.375		0.13	13666	5.57	-78.6	23.2	9184	
3:55		0.380		0.11	13567	5.58	-84.9	23.0	958	⇒ started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)	

Analytes Sampled for:		Bottles Collected					QA/QC Information
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic	
			x 20 mL Plastic (PFAS)					

Field Commets

- Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

ANZ

AECOM

FQM - Groundwater Sampling and Purging Record

B442

Q4AN(EV)-405-FM1

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	10/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	~~Well Development~~ or Well Sampling Event? (circle)	

Stick down: 0.1

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☑ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 2.670m Stick	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 5.500m Stick	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 1.8 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	TDS	Odour, Colour, Turbidity
2:05	500mL	2.780m		0.55	3806	5.04	153.6	21.3	2483	clear cl, no turb, no skeen, no odour
2:10		2.880m		0.16	3549	5.05	146.6	22.1	2437.5	
2:15		3.160m		0.10	2672	5.13	128.1	22.2	1729	
2:20		3.360		0.08	1486	5.14	126.6	21.5	1000	
2:25		3.685		0.26	1187	5.13	133.3	22.6	806	
2:30		3.600		0.07	1081	5.20	128.8	21.8	754	
2:35		3.660		0.08	1218	5.26	118.4	21.8	845	
2:40		3.760		0.07	1226	5.23	112.5	21.5	851.5	
2:45		3.820		0.07	1224	5.32	103.6	21.5	851.5	→ started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)	

Analytes Sampled for:		Bottles Collected						QA/QC Information
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic (09)	
			x 20 mL Plastic (PFAS)					

Field Comments

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — Distribution: Project Central File

ANZ

AECOM

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

DH01

Stick down: 0.03m

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	10/4/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 10/4/24	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): 2.330mBTOC	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 5.530mBTOC	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): ——	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 5.16 PPM	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
01:05	500mL	2.490		0.75	514	6.38	-56.6	20.6	yellow clr, mod turb, Sulphorous odour
01:10		2.730		0.28	488.5	6.36	-105.0	21.4	
01:15		3.050		0.15	501.0	6.34	-140.0	21.6	
01:20		3.430		0.10	534.0	6.34	-162.4	22.0	
01:25		3.630		0.1	501.0	6.33	-168.5	21.6	
01:30		3.915		0.12	502.0	6.36	-165.5	21.7	→ Started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

ANZ

AECOM

FQM - Groundwater Sampling and Purging Record

DHSP

Q4AN(EV)-405-FM1

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	10/4/24
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

Stick down: -0.13

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level: —	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc): —	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 3.68 mbtoc	Casing Radius (mm):	**Corrected Redox:** Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc): —	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m): —	Bore Locked (YES/NO):	**Parameter method:** ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 53.8	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:45									- well floods on top - well dry
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information
Field Filtered:	**Unfiltered:**		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)	
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic	
			x 20 mL Plastic (PFAS)					

Field Commets

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

Project Manager Signature — Date — **Distribution:** Project Central File

ANZ

FQM - Groundwater Sampling and Purging Record

AECOM

ABH17

Q4AN(EV)-405-FM1

Project Name:	Wyong	Project Number:	60709736	PM Name:	James Jentz	Sample Date:	3/4/24
Client:	TfNSW	Project Location:	Wyopng	Fieldwork Staff:	Eric Serttas / Alex To	Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level: 2.170	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc): 4.750	Casing Radius (mm):	Corrected Redox: Y (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☑ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
PID: 58.0 ppm	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
11:55	500L	2.300		3.92	8187	6.13	51.5	21.2	Clear clr, no sheen, no od, low turbidity
12:00		2.445		3.00	8489	6.14	-55.9	20.7	
12:05		2.431		2.74	8452	6.14	-76.1	22.0	
12:10		2.600		2.63	8443	6.15	-80.2	22.0	
12:15		2.705		1.82	8434	6.17	-137.0	22.1	
12:20		2.850		0.25	8388	6.22	-141.0	22.1	
12:25		2.965		0.16	8375	6.24	-147.0	22.0	→ Started sampling
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	2	x 40 mL Vial (HCl)		x 60 mL Ferrous	2	x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)	1	x 100 mL Amber	1	x 250 mL Plastic ↓		
			x 20 mL Plastic (PFAS)				(Cl meter, phenol)		
							Dogsecurity		

Approval and Distribution

Fieldwork Staff Signature _____ Date _____ Checker Name and Signature _____ Date _____

Project Manager Signature _____ Date _____ Distribution: Project Central File

AECOM

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

SW-S

Project Name:	Wyong	**Project Number:**	60709736	**PM Name:**	James Jentz	**Sample Date:**	
Client:	TfNSW	**Project Location:**	Wyopng	**Fieldwork Staff:**	Eric Serttas / Alex To	**Well Development or Well Sampling Event? (circle)**	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	**Corrected Redox:** Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	**Parameter method:** ☐ Downhole		☐ Other (specify)	Sampling Start Time:	2 Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				3 Parameters
Calculated bore volume (L):	Includes/ excludes bore **annulus** (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (~~ppm~~ mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
1143	100mL	–		0.48	448.4	5.88	-76.7	25.5	Clear colour, ~~moderate~~ turbidity, no sheen, no odour
1146				0.33	446.0	3.87	-65.7	25.5	
1148				0.27	443.5	5.86	-61.3	25.5	
1152				0.17	438.3	5.83	-54.4	25.5	
1155				0.11	433.0	5.80	-48.7	25.5	
1158				0.09	431.2	5.78	-47.2	25.4	
2101				0.05	427.8	5.78	-44.8	25.5	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Commets
Field Filtered:	**Unfiltered:**		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic		
			x 20 mL Plastic (PFAS)						

Approval and Distribution

Fieldwork Staff Signature	**Date**	**Checker Name and Signature**	**Date**
Project Manager Signature	**Date**	**Distribution:** Project Central File	

Appendix J

Waste disposal records

DEMAST

Waste and Reclamation solutions for infrastructure projects throughout Sydney

NEW HIRE

Client: SMARTSCAN LOCATORS PTY LTD
Project: 210PHW-01
Worker: Tony O'Keeffe
Docket Number: 1038

Job start time (depart depot)	April 2nd 2024, 12:01 pm
Job completion time (return to depot)	April 2nd 2024, 03:35 pm

Drop Off

Is there a trailer with a second bin?	No
First bin being dropped off:	DEM 40 - Mudbin
Second bin being dropped off:	

Was there a wait time?	No
Wait time:	
Comments on wait time:	

General Comments:

Customer Signoff	
Driver Signoff	

DEMAST

Waste and Reclamation solutions for infrastructure projects throughout Sydney

OFF HIRE

Client: SMARTSCAN LOCATORS PTY LTD
Project: 210PHW-01
Worker: Tony O'Keeffe
Docket Number: 1148

Job start time (depart depot)	April 12th 2024, 06:16 am
Job completion time (return to depot)	April 12th 2024, 09:55 am

Is there a trailer with a second bin?	No
First bin being picked up:	DEM 40 - Mudbin
Second bin being picked up:	

Was there a wait time?	No
Wait time:	
Comments on wait time:	

Was there tipping required?	Yes
Tipping Location:	Demast
Weighbridge Docket ID:	84232
Net Weight:	0.56

General Comments:

Customer Signoff	
Driver Signoff	


DEMAST
Waste and Reclamation solutions for Infrastructure projects throughout Sydney

Docket report for Invoice #00021516

Date	Time	Docket	Product	Job	Order No	Rego	Gross	Tare	Net	Comment
08-Dec-2023	14:24	76518	DRILLING MUD	210PHW-01		XN32EW	38.12 t	23.88 t	14.24 t	2023-003401
							38.12 t	23.88 t	14.24 t	

Weighbridge Ticket

Demast PTY LTD

7 Long Street

Smithfield NSW 2164
PHONE : 0400525796
EPL No : 20875

Docket No. : 76518
Load Type : Second
Operator : Demast.User
Rego No. : XN32EW
Fleet : DEMAST PTY LTD
Time In : 08/12/2023 12:45:10 PM
Time Out : 08/12/2023 02:24:41 PM
Job Number : 210PHW-01
Customer : SMARTSCAN LOCATORS PTY LTD
Product : DRILLING MUD

Gross : 38.12 t
Tare : 23.88 t
Net : 14.24 t

Paid By : ACCOUNT
Ref Docket : 2023-003401
:

7 Long Street, Smithfield NSW 2164
ABN: 65 168 661 514
Phone: 02 9756 0214
Email: info@demast.com.au

Demast Docket

Created by	John Greer	**Date**	8 Dec 2023 07:09
ID	001596	**Job**	2023-003401

Order Details	
Customer	SMARTSCAN LOCATORS PTY LTD
Truck Rego	XN32EW
Job Type	Change Over
Job Details	Pickup Location: 210 Pacific Highway Tuggerah Pickup Address: 210 Pacific Highway Tuggerah Sydney NSW 2259 Delivery Location: DEMAST PTY LTD Delivery Address: 7 Long St Smithfield NSW 2164
Depart Depot DateTime	8 Dec 2023 07:09

Customer Details	
Is tipping required?	**Yes**
Next location from tipping site?	**Back to Depot**
Is there an additional trailer?	**Yes**

Select Bins	Product	Pickup location	Delivery Location	Bin Pick up / Drop off time	Duration
DEM 10	None	DEMAST PTY LTD	210 Pacific Highway Tuggerah	8 Dec 2023 10:15	14
DEM 25	None	DEMAST PTY LTD	210 Pacific Highway Tuggerah	8 Dec 2023 10:15	14
DEM 21	None	210 Pacific Highway Tuggerah	DEMAST PTY LTD	8 Dec 2023 09:51	14
DEM 08	None	210 Pacific Highway Tuggerah	DEMAST PTY LTD	8 Dec 2023 10:17	14

Is Customer available for Signature?	**Yes**

CUSTOMER SIGNATURE



Is there a Weighbridge required?	**Yes**

Weighbridge Details	
Weighbridge Docket Number	20875
Weighbridge Docket Photo	

Weighbridge Details	
 Photo 08/12/2023 14:27:53	
Net Weight	14.24
Job Completion Date/Time	8 Dec 2023 14:27
CheckBinDelivered	

Docket report for Invoice #00021667

Date	Time	Docket	Product	Job	Order No	Rego	Gross	Tare	Net	Comment
23-Dec-2023	09:52	77346	DRILLING MUD	210PHW-01		XN32EW	35.08 t	23.84 t	11.24 t	2023-003424
							35.08 t	23.84 t	11.24 t	

Weighbridge Ticket

Demast PTY LTD

7 Long Street

Smithfield NSW 2164
PHONE : 0400525796
EPL No : 20875

Docket No. : 77346
Load Type : Second
Operator : Demast.User
Rego No. : XN32EW
Fleet : DEMAST PTY LTD
Time In : 22/12/2023 05:18:49 PM
Time Out : 23/12/2023 09:52:34 AM
Job Number : 210PHW-01
Customer : SMARTSCAN LOCATORS PTY LTD
Product : DRILLING MUD

Gross : 35.08 t
Tare : 23.84 t
Net : 11.24 t

Paid By : ACCOUNT
Ref Docket : 2023-003424
:

7 Long Street, Smithfield NSW 2164
ABN: 65 168 661 514
Phone: 02 9756 0214
Email: info@demast.com.au

DEMAST
Waste and Reclamation solutions for infrastructure projects throughout Sydney

Demast Docket

Created by	John Greer	**Date**	22 Dec 2023 13:26
ID	001622	**Job**	2023-003424

Order Details	
Customer	SMARTSCAN LOCATORS PTY LTD
Truck Rego	XN32EW
Job Type	Off Hire
Job Details	Pickup Location: 210 Pacific Highway Tuggerah Pickup Address: 210 Pacific Highway Tuggerah Sydney NSW 2259 Delivery Location: DEMAST PTY LTD Delivery Address: 7 Long St Smithfield NSW 2164
Depart Depot DateTime	22 Dec 2023 13:26

Customer Details	
Is tipping required?	**Yes**
Next location from tipping site?	**Back to Depot**
Is there an additional trailer?	**Yes**

Select Bins	Product	Pickup location	Delivery Location	Bin Pick up / Drop off time	Duration
DEM 25	None	210 Pacific Highway Tuggerah	DEMAST PTY LTD	22 Dec 2023 15:40	25
DEM 10	None	210 Pacific Highway Tuggerah	DEMAST PTY LTD	22 Dec 2023 15:43	24

Is Customer available for Signature?	**No**

DRIVER SIGNATURE - CUSTOMER UNAVAILABLE



Is there a Weighbridge required?	**Yes**

Weighbridge Details	
Weighbridge Docket Number	77346

Weighbridge Docket Photo

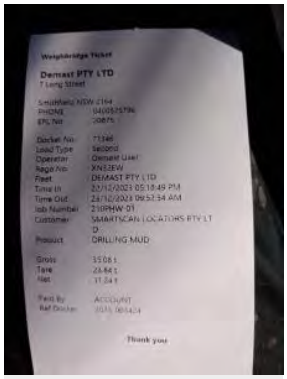


Photo 23/12/2023 09:54:16

Net Weight	11.24

Weighbridge Details	
Job Completion Date/Time	22 Dec 2023 18:00
CheckBinDelivered	

Docket report for Invoice #00022604

Date	Time	Docket	Product	Job	Order No	Rego	Gross	Tare	Net	Comment
22-Mar-2024	13:34	82947	DRILLING MUD	210PHW-01		XN32EW	36.02 t	24.40 t	11.62 t	954
							36.02 t	24.40 t	11.62 t	

DEMAST

Waste and Reclamation solutions for infrastructure projects throughout Sydney

CHANGEOVER

Client: SMARTSCAN LOCATORS PTY LTD
Project: 210PHW-01
Worker: Michael OKeeffe
Docket Number: 954

Job start time (depart depot)	March 22nd 2024, 08:00 am
Job completion time (return to depot)	March 22nd 2024, 01:36 pm

Bin being dropped off:	DEM 15 - Mudbin

Bin being picked up:	DEM 02 - Mudbin

Was there a wait time?	No
Wait time:	
Comments on wait time:	

Was there tipping required?	Yes
Tipping Location:	Demast
Weighbridge Docket ID:	82947
Net Weight:	11.62

General Comments:

Customer Signoff	
Driver Signoff	

DEMAST

Waste and Reclamation solutions for infrastructure projects throughout Sydney

OFF HIRE

Client: SMARTSCAN LOCATORS PTY LTD
Project: 210PHW-01
Worker: Michael OKeeffe
Docket Number: 1010

Job start time (depart depot)	March 28th 2024, 06:30 am
Job completion time (return to depot)	March 28th 2024, 11:10 am

Is there a trailer with a second bin?	Yes
First bin being picked up:	DEM 27 - Mudbin
Second bin being picked up:	DEM 15 - Mudbin

Was there a wait time?	No
Wait time:	
Comments on wait time:	

Was there tipping required?	Yes
Tipping Location:	Demast
Weighbridge Docket ID:	83298
Net Weight:	0.16

General Comments:

Customer Signoff	
Driver Signoff	


DEMAST
Waste and Reclamation solutions for Infrastructure projects throughout Sydney

DEMAST

Waste and Reclamation solutions for infrastructure projects throughout Sydney

NEW HIRE

Client: SMARTSCAN LOCATORS PTY LTD
Project: Smartscan Locators
Worker: Tony O'Keeffe
Docket Number: 610

Job start time (depart depot)	February 26th 2024, 03:00 pm
Job completion time (return to depot)	February 26th 2024, 06:20 pm

Drop Off

Is there a trailer with a second bin?	Yes
First bin being dropped off:	DEM 40 - Mudbin
Second bin being dropped off:	DEM 02 - Mudbin

Was there a wait time?	No
Wait time:	
Comments on wait time:	

General Comments:

Customer Signoff	
Driver Signoff	